



Digitized by the Internet Archive  
in 2009 with funding from  
Lyrasis Members and Sloan Foundation

<http://www.archive.org/details/graduatecatalog1978indi>



**INDIANA UNIVERSITY OF PENNSYLVANIA**  
**INDIANA, PENNSYLVANIA 15701**

**Bulk Rate**

**U. S. Postage Paid**

**Permit No. 198**

**Indiana, Pa. 15701**



THIS UNIVERSITY IS ACCREDITED BY THE NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION FOR THE PREPARATION OF ELEMENTARY AND SECONDARY TEACHERS AND TEACHERS IN THE SPECIAL FIELDS OF ART, BUSINESS, HOME ECONOMICS, MUSIC, DRIVER AND SAFETY EDUCATION, DENTAL HYGIENISTS, AND PUBLIC SCHOOL NURSES, AND BY THE MIDDLE STATES ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS. THE UNIVERSITY IS A MEMBER OF THE COUNCIL OF GRADUATE SCHOOLS IN THE UNITED STATES.

---

IUP IS COMMITTED TO AFFIRMATIVE ACTION AND PROVIDES EQUAL EDUCATION AND EMPLOYMENT OPPORTUNITIES UNDER TITLE IX. IN ANY PERSONNEL ACTION — RECRUITMENT, APPOINTMENT, PROMOTION, TRAINING OR SEPARATION — IUP DOES NOT DISCRIMINATE AGAINST ANY PERSON ON ACCOUNT OF RACE, COLOR, RELIGIONS, CREED, LIFE STYLE, AFFECTIONAL OR SEXUAL PREFERENCE, HANDICAP, ANCESTRY, NATIONAL ORIGIN, UNION MEMBERSHIP, AGE, OR SEX.

# **Indiana University of Pennsylvania Bulletin**

## **1978-1980 Graduate Catalog**

INDIANA UNIVERSITY OF PENNSYLVANIA  
INDIANA, PENNSYLVANIA 15701

---

TELEPHONE: (412) 357-2100



## TABLE OF CONTENTS

<b>Graduate School Calendar</b>	<b>2-3</b>
<b>The Graduate School at Indiana</b>	<b>5</b>
<b>Academic Information</b>	<b>8</b>
<b>General Service Courses</b>	<b>24</b>
<b>Program Curricula</b>	<b>27</b>
<b>Directory</b>	<b>119</b>
<b>Index</b>	<b>122</b>
<b>Forms</b>	<b>125</b>

### FALL SEMESTER, 1977-1978

- August 1** Students who plan to take graduate work during the fall semester must have an application for graduate study approved on or before this date.
- October 1** Prospective December graduates must have filed an application for graduation and also have received official approval of the thesis proposal on or before this date.
- November 1** Final draft of research thesis due for December graduates.

### SPRING SEMESTER, 1978

- December 1** Students who plan to take graduate work during the spring semester must have an application for graduate study approved on or before this date.
- March 1** Prospective May graduates must have filed an application for graduation and also have received official approval of the thesis proposal on or before this date.
- April 1** Final draft of research thesis due for May graduates.



# GRADUATE SCHOOL CALENDAR

## SUMMER SESSION, 1978

Dates for the 1978 summer sessions have not been set. Please contact Graduate School for these dates.

June 1 Prospective August graduates must have an application for graduation approved on or before this date.

June 28 Final draft of thesis due for August graduates.

## FALL SEMESTER, 1978-1979

August 1 Students who plan to take graduate work during the fall semester must have an application for graduate study approved on or before this date.

October 1 Prospective December graduates must have filed an application for graduation and also have received official approval of the thesis proposal on or before this date.

December 1 Final draft of research thesis due for December graduates.

## SPRING SEMESTER, 1979

December 1 Students who plan to take graduate work during the spring semester must have an application for graduate study approved on or before this date.

March 1 Prospective May graduates must have filed an application for graduation on or before this date.

April 1 Final draft of research thesis due for May graduates

## SUMMER SESSION, 1979

Dates for the 1979 summer session have not been set. Please contact Graduate School for these dates.

June 1 Prospective August graduates must have an application for graduation approved on or before this date.

June 28 Final draft of thesis due for August graduates.



# THE GRADUATE SCHOOL AT INDIANA

## GENERAL INFORMATION

---

Graduate work was inaugurated at Indiana University of Pennsylvania in September, 1957.

Programs leading to the degrees Master of Education, Master of Arts, Master of Science, Doctor of Education, and Doctor of Philosophy are now available. Non-degree programs leading to certification in various fields are also available.

In all graduate programs the objectives are (1) to encourage excellence in scholarship, (2) to provide for depth in the student's special field, and (3) to stimulate enthusiasm for continued cultural and professional growth

**Location** — Indiana University of Pennsylvania is located in Indiana, Pennsylvania, a community with a population of approximately 20,000. Indiana is 30 miles north of Johnstown and 60 miles northeast of Pittsburgh. Situated in the foothills of the Allegheny Mountains, Indiana has a climate that is conducive to study the year round.

**Library** — The Rhodes R. Stabley Library provides excellent facilities for graduate work with professional librarians readily available for assisting with specialized reference work.

The present book collection of 475,000 volumes grows at the rate of approximately 50,000 volumes annually. The library owns 630,000 units of microform and in addition there are extensive holdings of periodicals (about 4,000 current titles), microfilms, microcards, curriculum materials, federal and state documents, filmstrips and recordings.

The Rhodes R. Stabley Library was opened in 1961. It is designed to give efficient service through a uniform flow of library materials in an attractive, but functional setting. At least one professional librarian is always on duty to provide reference service. Book stacks are open to all students.

**Instructional Resources Services** — The University support service dealing with Instructional Systems Technology has been developed to assist in the teaching/learning process by making available sensory or non-book materials for instruction and actively assisting faculty in the process of Instructional Development.

The services consist of the research and development of instructional systems such as dial access, student response, FM radio, closed-circuit as well as community Cable TV, and personal self-instructional materials. In addition, the services provide photographic, sound recording and reproduction, design and production of conventional instructional materials; procurement, inventory, and maintenance of University multi-media equipment and materials; developing and maintaining a 16mm film library; and assisting in technical consultative services dealing with sensory materials to the administration, instructional staff, students, and community.

Although the media equipment and materials are primarily located in the academic departments, the service center with the exception of maintenance, is housed in the lower floor of Davis Hall. It is estimated that the University media inventory is worth well over a half million dollars.

**The Computer Center** — The Computer Center, established in July, 1963, is located in the heart of Indiana's main campus. The Center provides computational support for undergraduate and graduate courses, faculty and student research, and the administrative requirements of the University. The computing capacity of the Center is provided by a large-scale disk oriented central processor which supports both time-sharing and batch processing services for the university community. Typewriter terminals, located both in the Computer Center and in various departments on campus, permit the use of the computer on a time-sharing basis. Key punching facilities and a full complement of tabulating equipment are available in the Computer Center for student use. Additional key punching facilities are also available in many departments on campus. Aid in the use of the computer and facilities may be obtained from user assistants on duty at the Computer Center, and from the Center's professional staff.

Indiana's Computer Center plays an active part in the daily functioning of the University. It is the principle laboratory facility for computer-oriented courses and is used as a teaching aid in many classes involving statistical and numerical analyses and computer simulations. The staff at the Center is actively involved in continuing work aimed at making computers a more effective and readily accessible tool for both the academic and administrative segments of the university community.

**Career Services** — Placement is a service offered by Indiana University of Pennsylvania to its graduates without charge. The services of the Placement Bureau are available to students who have received their Master's degree or who have been accepted as candidates for the degree in the Indiana Graduate School. Graduate students wishing to take advantage of placement

service should complete the necessary forms with the Director of Career Services.

The Career Services Office prepares a listing of all current job openings available to IUP graduates. To obtain this listing, the graduate can stop in Career Services or send a stamped, self-addressed envelope requesting the listing. Credentials are also mailed out to potential employers at their request.

Address: Career Services Office  
302 Pratt Hall  
Indiana University of PA  
Indiana, Pa. 15701

## **FINANCIAL AID**

---

### **Assistantships**

For full-time graduate students (9 or more semester hours), a number of graduate assistantships are available at the University each year. Duties include teaching under supervision, assisting professors in an instructional or research capacity and providing needed student services.

The two levels of assistantship assignment are for duties of 20 hours per week with a stipend of \$2705 and duties for 10 hours per week with a stipend of \$1352. Both assistantship levels provide a waiver of tuition for the period of assumption of duties through the following August.

Students interested in assistantship appointments should request applications from the office of the Associate Dean of the

Graduate School. The deadline for making application is March 15. Applicants for assistantship must complete their applications for admission to the Graduate School and be accepted before they can be considered for an assistantship. Assistantship appointments are made upon the recommendation of the Chairman or Director of Graduate Studies in the department concerned with the approval of the Graduate School. Applicants are notified of the decision of their application on or shortly after April 1.

## Fellowships

Fellowships may be available from specific departments. These vary in stipends paid and tuition waived. Interested students should contact the departments directly.

## Graduate Alumni Scholarship

This \$500.00 scholarship is awarded both Fall and Spring Semesters by the Indiana University of Pennsylvania Alumni Association. The applicant must be an alumnus or a descendant of an alumnus of Indiana University of Pennsylvania. The award is made on the basis of ability. Applications must be submitted to the Graduate School by December 1st and August 1st. Contact the Graduate School for additional information.

## Scholarships

The Indiana University of Pennsylvania Board of Trustees has authorized the Loan and Scholarship Committee to award some scholarship aid to meritorious graduate students. The following procedure has been established by the Loan and Scholarship Committee.

1. One \$50.00 scholarship be awarded each semester to the graduate student who best merits the award.

2. Three members of the Graduate Council serve as a committee to recommend the recipient to the Loan and Scholarship Committee.

3. Nominations for the award be made to the committee by the Dean of the Graduate School.

4. To be eligible for nomination the student must have completed twelve semester hours of graduate work at Indiana and be an approved candidate for a graduate degree at Indiana.

**Delta Pi Epsilon Graduate Scholarship** — This graduate scholarship was established by Beta Alpha Chapter of Delta Pi Epsilon which is a National Honorary Graduate Fraternity in Business Education. The scholarship award of \$25.00 is made each year by Beta Alpha Chapter and is awarded to a business education graduate student on the basis of outstanding scholarship and research.

**Kappa Delta Pi Graduate Scholarship** — The Kappa Delta Pi Graduate Scholarship was established by Beta Gamma Chapter of this university to honor that member of the graduate group who is judged the ideal student. The award of \$25.00 is made each year by a committee of the local chapter and is awarded on the basis of scholarship and research competition.

**Veterans** — Indiana is approved to offering training under the various G.I. Bills (Public Law 550) and Public Law 894 (disabled veterans). Students who are entitled to training under one of these bills should contact the Veterans' Counselor immediately after being accepted for admission to Indiana in order to secure additional instructions. This procedure is necessary so veterans may be included on the monthly payrolls. The Office of the Veterans' Counselor is in Pratt Hall.



## **PROCEDURES AND REGULATIONS**

A student is expected to assume full responsibility for knowing the regulations of the Graduate School. These regulations are set forth in the catalog. Students should be familiar with general regulations governing requirements for the degree and specific regulations governing the program in which he plans to work. In addition, students should be familiar with regulations set forth in Graduate Student Rights and Responsibilities. A copy may be secured from the Graduate School Office.

## **PROGRAM CHANGES**

To insure their quality and relevance, the graduate programs at Indiana University are subject to constant review and change by responsible and duly-appointed groups. Consequently, the University recognizes that provision must be made to prevent hardship to students already enrolled in programs when program or general university requirements are changed. Students affected by changes in programs, policies and regulations are given the option of following requirements in force when the student first enrolled for graduate study or those requirements in force at the time of expected graduation. While it is the student's option to choose between old or new requirements for his chosen program, he cannot vacillate between adhering to either one or the other set of requirements.

## ACADEMIC INFORMATION

Should a matter of interpretation of such situations arise, the student, his advisor, or both should petition the Dean of the Graduate School for a decision on which requirements apply.

### ADMISSIONS

Admission to the Graduate School is required of all students who wish to take graduate courses for graduate credit. Each student applying for admission, either as an applicant for a graduate degree program or as an applicant for a non-degree program, must file with the Graduate School an application for admission and such other supporting documents required. Application materials will be supplied by the Graduate School upon request. The application materials should be on file in the Graduate School at least one month prior to the beginning of the semester or term in which the applicant expects to begin graduate work. Each applicant should check the Calendar in this catalog for application deadlines.

Admission to the Graduate School means that a student may program and register for graduate courses. Admission to the Graduate School does not guarantee subsequent admission to candidacy for a degree nor does it guarantee successful completion of all requirements for the degree.

### Application Procedures

1. Each applicant must file with the Dean of the Graduate School a complete application form.
2. Each applicant must request two copies of official transcripts

from each undergraduate and graduate institution attended. Forms for requesting transcripts are included in the application packet.

3. Each applicant should request letters of recommendations from three individuals familiar with his background. At least two letters should be requested from individuals familiar with the academic background of the applicant. Recommendation forms are included in the application packet.
4. All applicants will be asked to take the Graduate Record Examination. See instructions in application packet.
5. An application fee in the amount of \$10.00, non-refundable, must accompany the application. The check should be payable to: Indiana University of Pennsylvania.

### Requirements for Admission

1. An applicant must have a Bachelor's degree from a college or university accredited by the Middle States Association of Colleges and Secondary Schools or an equivalent regional accrediting agency.
2. The applicant shall present an official transcript of all previous college and university work. The undergraduate honor point values should be 2.6 or better for all four years (2.6 assumes a grading system in which A = 4.0). If not, the applicant under certain circumstances may be asked to submit additional evidence of academic ability. Normally, this additional evidence may be in the form of scores from the Graduate Record Examination.
3. Graduate Record Examination scores must be submitted by

all students prior to admission to Graduate School. Students in the Master of Business Administration program should schedule the Graduate Management Admissions Test administered by Educational Testing Service.

4. Applicants planning admission to programs leading to the M.Ed. degree should have a Provisional Pennsylvania Teachers Certificate or its equivalent. Applicants for admission to graduate study leading to the M.Ed. degree who do not have proper teacher certification may be required to complete a planned program leading to certification by the time the student applies for candidacy for the M.Ed. degree.

## Admission Classifications

An applicant for admission to the Graduate School will receive notification of admission classification from the Dean of the Graduate School prior to the term in which the applicant intends to begin study. Admission classifications are as follows:

1. **Full Graduate Standing.** This classification may be given to an applicant who plans to work towards a graduate degree in the field of study and who has satisfied the requirements for admission to the Graduate School. Admission to the Graduate School on full graduate standing allows the applicant to program for courses, but it does not guarantee subsequent admission to candidacy for a degree in a specific field.
2. **Provisional Graduate Standing.** This classification may be given to qualified applicants who plan to work towards a graduate degree, but whose application materials are incomplete at the time of admission. However, if upon completion of application the applicant does not meet the minimum standards for admission, he may be denied admission.

3. **Temporary Graduate Standing.** May be granted to applicants who do not plan to work toward a graduate degree and have satisfied the requirements for admission to the Graduate School. Applicants may wish at a future time to be reclassified as Full Graduate Standing. This may be done upon request. Credits completed while on Temporary Graduate Standing may be applied toward a graduate degree with the approval of the student's department after changing to Full Graduate Standing. Such action requires the approval of the Graduate Dean.
4. **Special Graduate Standing.** This is a probationary classification which may be granted to students who at the time of admission may have some academic deficiency.
5. **Inactive Standing.** Applicants who decide to postpone their actual enrollment in graduate classes will be classified as inactive. Applicants may remain on inactive status up to one year after the intended date of initial enrollment in courses. Thereafter, they must reapply for admission to the Graduate School.
6. **Denied Admission.** This classification may be given to an applicant who does not satisfy minimum requirements for admission to the Graduate School. An individual denied admission will normally receive a letter giving the reasons for the denial.

**Miller Analogies Test** — Applicants for admission who are requested to take the Miller Analogies Test should schedule the examination through the Testing Center, IUP. The test is administered once a month. Applicants taking the M.A.T. at another institution should request that the score be sent to Dean, Graduate School, Indiana University of Pennsylvania.



**Graduate Record Examinations** — Applicants to all departments must take the APTITUDE section of the Graduate Record Examination. The following departments also require that the applicant take the ADVANCED section: Biology; Educational Psychology (Education); German; Home School Visitor (Education); Music (M.A. Music); Music (M.Ed. Education); Psychology; School Psychology (Education); Spanish; D.Ed. in Elementary Education (Education); Ph.D. in English (English).

## Foreign Student Applicants

All foreign students applying for admission to the Graduate School should follow general procedures. In addition each applicant whose native language is not English must present evidence of ability to comprehend English. Each applicant should plan to take the Test of English as a Foreign Language (TOEFL) administered by the Educational Testing Service, Princeton, New Jersey, U.S.A. No foreign student's application will be considered until scores are filed with the Dean, Graduate School, Indiana University of Pennsylvania. Each applicant must also present evidence to the Graduate School of adequate financial resources. These resources should be sufficient to meet the cost of living in Indiana, Pennsylvania, cost of travel to and from the student's native country and cost of graduate education. Evidence of adequate financial resources should be sent directly to the Dean, Graduate School, Indiana University of Pennsylvania, Indiana, Pennsylvania 15701. As a regular procedure, the Graduate School notifies the University Foreign Student Advisor at the time of every student's application. Applicants with questions on legal-political matters should direct them to him.

## Auditors

A student cannot audit a class unless he has been admitted to the Graduate School. Auditors must have permission from the instructor and the Dean of the Graduate School before programming as an auditor. An auditor will pay the normal tuition and required fees. An auditor will, with permission from the instructor, participate in class discussion, do practicum work, take examinations and share the privileges of a class member. An audit grade will be given only if the student has completed all course requirements. The auditor cannot secure credit for his work nor can he subsequently secure credit for work done in the course. A student, who because of his status as a graduate assistant or a fellowship recipient, is required to register for a certain number of credits is not permitted to count those courses for which he is registering as an auditor for this purpose.

## Academic Load

Many graduate students depend upon part-time or full-time employment to meet expenses. A student who is thus employed must recognize the time demands of his work schedule in planning his academic program. The Graduate School takes the position that the facilities of the Graduate School should be made available only to students who can profit from their Graduate School experience to a maximum extent.

It is possible for students to schedule a full-time load in many of the approved programs. Nine to fifteen semester hours of work per semester is regarded as a full-time graduate load. Eight semester hours of work or less is regarded as a part-time graduate load. Students who intend to take a full-time load

should not plan to hold an outside full-time job. Graduate Assistants cannot register for more than thirteen hours in any one semester. No student can accumulate more than six hours in "tour" courses toward a degree.

## PROGRAMMING AND REGISTRATION

**Advisement** — After a student has been admitted to the Graduate School, he should check with the Chairman or the Director of Graduate Studies in his intended field of study. If the student is unclassified, he should consult with the Dean of the Graduate School. Advisement is required for all students enrolling for graduate classes for the first time. Certain departments require that students be advised before programming for courses each semester. Consult instructions with program materials for a listing of departmental instructions on advisement.

**Pre-Registration** — Prior to each semester or summer session the graduate student will receive pre-registration materials and instructions from the Graduate School. Fill out the program form according to instructions and return form to the Graduate School by the deadline specified in the Calendar. Each program must be subsequently approved by the Graduate Dean.

**Final Registration** — After the student has returned his program to the Graduate School, he will receive a bill for tuition and fees from the Business Office. Bills should be paid before the student attends classes. Final registration for the courses takes place on campus. Instructions will be sent with pre-registration materials.

## TUITION AND FEES

Full-Time Tuition (in-state)

\$400 for 9 to 15 SCH, then \$43 for each additional SCH.

Part-Time Tuition (in-state)

\$43 per SCH for less than 9 SCH.

Full-Time Tuition (out-of-state)

\$750 for 9 to 15 SCH, then \$63 for each additional SCH.

Part-Time Tuition (out-of-state)

\$63 per SCH.

Summer Session Tuition (for Pennsylvania residents)

Per SCH ..... \$43.00

Summer Session Tuition (for non-residents of Penna.)

Per SCH ..... \$63.00

Application Fee (Must accompany application form) .. \$10.00

Service Fee — Semester Full-Time Students

(9 credits or more) ..... \$30.00

Semester Part-Time Students

(8 credits or less) ..... \$11.00

Main Summer Session —

All Graduate Students ..... \$10.50

Pre and Post Summer Session —

All Graduate Students ..... \$ 3.75

Late Fee ..... \$1.00/day up to \$10.00

Applied Music Fee ..... \$70.00

Auditors Fee (Same as tuition)

Graduation Fee ..... \$ 5.00

Master's Cap, Hood and Gown Fee ..... Nominal

All fees are subject to change without notice.

## UNIVERSITY REFUND POLICY

---

### Withdrawals From the University

Graduate students withdrawing from the University must process such withdrawal through the Graduate School Office, Stright Hall. The official withdrawal date will be established by the Graduate School Office.

Students totally withdrawing from courses, residence halls and/or meal contracts upon receiving approval from the Graduate School will forfeit a portion of the semester charges in accordance with the following schedule:

From the first full day of semester classes to and including the fourteenth (14th) calendar day following the start of classes a student will forfeit twenty (20) percent of the total semester charges.

From the fifteenth (15) calendar day following the start of classes to and including the twenty-first (21st) calendar day following the start of classes a student will forfeit thirty (30) percent of the total semester charges.

From the twenty-second (22nd) calendar day to and including the twenty-eighth (28th) calendar day following the start of classes a student will forfeit forty (40) percent of the total semester charges.

From the twenty-ninth (29th) calendar day to and including the thirty-fifth (35th) calendar day following the start of classes a student will forfeit fifty (50) percent of the total semester charges.

After the thirty-sixth (36th) calendar day following the

start of classes no refund will be granted and all semester fees forfeited.

The start of days is defined as the first day of classes to begin as scheduled on the University calendar.

Refunds for students receiving financial assistance from scholarships and/or grants will be returned to the source of aid in an appropriate proportion, except in those cases in which a full refund to the source is required.

No refunds will be granted unless formal withdrawal procedure has been initiated by the student or his family within 30 days of the date of withdrawal. Written and dated notice is required.

No refunds will be granted for students suspended or expelled by the University.

The Graduate School Office may request exceptions of these policies and grant pro-rated refunds when circumstances justify it. (EXAMPLE: death, medical reasons or military obligation.)

### Discrete Course Withdrawal

No refunds will be made for reduced class load after classes have started.

### Withdrawals

**Withdrawal From Courses** — If a student withdraws from a course before one-half of the periods scheduled, he may do so by notifying the Graduate Dean in writing of his intent to withdraw. A grade of "W" will be entered on the permanent record. A student withdrawing from a course after the completion of the sixth week will automatically receive an "F". If withdrawal is caused by a health condition or for another approved reason, the grade may be indicated as incomplete and

made up within sixty days of the end of the semester in which the grade was given.

**Withdrawal From Graduate School** — If a student withdraws from the Graduate School, the Dean of the Graduate School must be notified in writing. Students withdrawing for reasons of health or military service may be reinstated at some future time without the leave period counting as part of the five years required to complete the degree. Students who have been receiving financial aid through the Financial Aid office must process through that office at the time of their withdrawing.

**Withdrawal From University Services** — Students who withdraw from the University Student Services (residence hall, meal contracts, etc.) but do not totally withdraw from the University will not be granted a refund.

## GRADING SYSTEM

The following grading system is used for all graduate classes:

A — Excellent      C — Fair      I — Incomplete  
B — Good          F — Failure      W — Withdrawn

A "I" (Incomplete) may be issued only when the work is interrupted for justifiable reason. No "I" can be given without the consent of the Dean of the Graduate School. An "I" must be made up within sixty days of the end of the semester in which it was given. An "I" given for GD 550 or GD 650 may be carried indefinitely. If not made up within the sixty day period, the "I" will automatically become an "F". A "W" will be entered on the permanent record if the student officially withdraws before the

completion of the sixth week of the scheduled periods. No "W" can be given without the consent of the dean of the Graduate School. If a student officially withdraws after completion of the sixth week of the scheduled periods, an "F" will be entered on the permanent record. However, if this withdrawal is justifiable and approved by the Graduate Dean, an "I" can be given.

## COURSE ABBREVIATION KEY

The following departmental abbreviations are used to identify courses referred to in the Catalog:

AC	Adult Education	ED	Education
AH	Art History	EP	Educational Psychology
AL	Allied Health	EL	Elementary Education
AM	Applied Music	EM	Elementary Math
AN	Anthropology	ES	Elementary Science
AR	Art	EN	English
AS	Arts and Science	EX	Education of Exceptional Students
AT	Art Education	FL	Foreign Language
AY	Astronomy	FN	Food and Nutrition
BI	Biology	FE	Foundations of Education
BU	Business	FR	French
BE	Business Education	GE	Geography
BM	Business Management	GK	Greek
CH	Chemistry	GL	Geology
CO	Computer Science	GS	Geoscience
CS	Consumer Services	GM	German
CE	Counselor Education	GR	Graduate
CR	Criminology	HP	Health & PE
DE	Distributive Education	HI	History
EC	Economics		

HE	Home Economics	PS	Political Science
HO	Home Economics Ed.	PO	Portuguese
IS	International Studies	PC	Psychology
LA	Latin	PN	Public School Nursing
LR	Learning Resources	RH	Rehabilitation
LI	Linguistics	RU	Russian
MI	Marine Sciences	SA	Safety Science
MA	Mathematics	SC	Science
MS	Military Science	SS	Social Science
MU	Music	SO	Sociology
AM	Music — Applied	SP	Spanish
NU	Nursing	SH	Speech and Hearing
PH	Philosophy	ST	Student Personnel Services
PY	Physics	TH	Theater

## **APPLICANTS FOR SPECIALIST CERTIFICATION PROGRAMS**

---

Indiana University of Pennsylvania offers specialist certification programs in Learning Resources, Public School Psychology and Reading. Applicants for these programs should follow the same procedures for admission, programming and registration described above. Applicants should check program descriptions in catalog for special requirements. The specialist certificate program in Learning Resources and Mass Media is a pre-master's level program. Applicants must hold a permanent college certificate for elementary or secondary education.

The Public School Psychology program is designed for those individuals who are seeking certification as Public School Psychologist in the Commonwealth of Pennsylvania. Applicants for admission to this program must have a Master's degree and an Instructional or Specialist certificate from an

accredited institution.

The Reading program is designed for those individuals who are seeking certification as (1) Reading Specialist or (2) Reading Supervisors. The program leading to certification as a Reading Specialist must be taken in conjunction with an M.Ed. program in Reading. Applicants who are seeking certification as Reading Supervisors must complete all requirements for the M.Ed. in Reading, be eligible for a Level III certificate and 18 semester hours of course work selected from Reading Supervisor's Program of Studies.

## **CLASS CANCELLATION**

---

It is the policy of the Graduate School not to cancel regularly scheduled classes because of weather conditions, nor does the Graduate School issue announcements over radio stations or in newspapers or give information through its switchboard that classes will be suspended because of such conditions. In cases of emergency which disrupt transportation facilities or create personal problems, students should make decisions as to attendance which appear appropriate to them in their particular circumstances.

## **GRADUATE STUDENT RIGHTS AND RESPONSIBILITIES**

---

When a student is admitted to the Graduate School, he assumes responsibility for following the procedure for (a) programming and registering, (b) payment of fees, (c) withdrawal from class, (d) residency, (e) time requirements, (g) degree candidacy, and (h) graduation.

**Grading** — A student has the right to expect that all course

requirements including grading criteria and procedures, will be made clear early in a course and that course grades will represent the instructor's professional and objective evaluation of performance.

**Evaluation** — A departmental evaluation of academic progress and professional potential is to be placed in personal files. Such evaluation is available upon request.

**Instruction** — One has the right to instruction which encourages the free and open discussion of ideas, and which respects the individual needs and aspirations of the students. Likewise, it is one's responsibility to maintain the classroom decorum and atmosphere which insures that this process of learning can take place.

**Advisement** — One has the right to the best advice and counsel that your department can provide in such areas as program and planning, selection of courses and professors, and general degree requirements.

**Role In One's Department** — Each department offering a graduate program is required to establish a Graduate Studies Committee and is urged, but not required, to form an association for its graduate students.

**The Graduate Student Assembly** — The Graduate Student Assembly is the graduate students' organization. One representative to serve on the Graduate Student Assembly is elected from each department by the full- and part-time graduate students of that department. The Graduate Student Assembly functions to serve all graduate students by regularly reviewing the policies of the Graduate Council, by participating in the judicial procedure for graduate students, and by working to improve the social and cultural life of the Graduate student.

**Judicial Procedure** — Any member of the academic community of Indiana University of Pennsylvania may initiate a case involving the rights or responsibilities of graduate students. The Graduate Student Judiciary, composed of the three officers of the Graduate Student Assembly and two other council members, has original jurisdiction in all cases. A case may be referred, or a decision appealed, to the Departmental Graduate Judiciary, composed of the Director of Graduate Studies of the Department, two members of the graduate teaching staff, and two graduate students.

The final step in the judicial procedure is the University Graduate Judiciary, composed of five members of the Graduate Council. The University Graduate Judiciary hears all appeals brought before it, and its decision is final and binding.

## **REGULATIONS FOR PRINCIPAL'S CERTIFICATES IN PENNSYLVANIA**

---

On October 1, 1964, new regulations for the issuance of principal's certificates became effective. The new regulations for the provisional elementary or secondary principal's certificate are substantially as follows: An applicant shall: (1) Hold a Pennsylvania College Certificate. (2) Have three years of successful experience. (3) Complete 45 semester hours of graduate study, including a Master's degree with the following minimum requirements: (a) 12 semester hours in an academic field other than psychology; (b) 15 semester hours distributed among administrative processes, curriculum and instructional processes, and the history and role of the school in society; and (c) documentary evidence of proficiency in English. The College Certificate and experience must be at the level (elementary or secondary) for which administrative certification is requested.

## **The Cooperative Administration of the Regulations by Indiana University of Pennsylvania and The Pennsylvania State University**

An applicant for a Provisional Elementary or Secondary Principal's certificate must be endorsed by an institution with an approved program in administration. Indiana does not provide a program in administration but has a cooperative arrangement with The Pennsylvania State University whereby a student interested in this certification may secure the endorsement of the approved institution by the following plan:

1. If a candidate for one of these certificates completes graduate work at Indiana for a Master of Education Degree in Elementary Education or in an academic field, he may complete the post master's-work (at least 15 hours) at The Pennsylvania State University.

2. When the Student applies for admission to candidacy for the M.Ed. at Indiana, he should indicate his intention to seek principalship certification. The Dean of the Indiana Graduate School will review the candidate's qualifications and may recommend the candidate to The Pennsylvania State University.

3. The Pennsylvania State University decides how much of the graduate work completed at Indiana may be counted towards the 45 hours needed for certification endorsement. Part or all of the minimum 30 hours earned for the M.Ed. at Indiana may be acceptable. The student should plan to schedule reading courses and courses in measurement and statistics as electives in his program at Indiana.

4. The completion of the research requirement at Indiana may be accepted as documentary evidence of proficiency in English.

5. After completion of his graduate program at Indiana, the student should seek admission to the Graduate School of The Pennsylvania State University indicating his interest in principalship certification. For application forms and information write to: The Assistant Dean for Admissions, The Graduate School, The Pennsylvania State University, University Park, Pennsylvania 16802.

6. The provisional certificate based on the 45 hours is valid for serving as a Principal for five years. To make this provisional certificate permanent, 15 additional approved graduate hours are required and may be completed at The Pennsylvania State University or other institutions with an approved administration program.

## **MASTER'S DEGREE PROGRAMS**

---

The Graduate School at Indiana University offers work leading to the degree Master of Education in the following fields:

Art	German
Biology	Home Economics
Business	Learning Resources
Chemistry	Mathematics
Counselor Education	Music
Educational Policy Studies	Physics
Educational Psychology	Reading
Elementary Education	Science
Elementary Mathematics	Social Science
Elementary Science	Spanish
English	Special Education
Geography	Speech and Hearing
Geoscience	

Work leading to the Master of Arts degree is offered in:

Art	History
Adult Education	Industrial Chemistry
Art Therapy	Music
Counseling Services	Psychology
Criminology	Public Affairs
English	Sociology
Geography	Spanish
Geoscience	Student Personnel Services
German	

Work leading to the Master of Science degree is offered in:

Biology	Mathematics
Business	Physics
Chemistry	Special Education
Geography	Speech and Hearing

A Master of Business Administration is also offered.

In addition to the above programs, an interdisciplinary independently structured PROFESSIONAL GROWTH program has been developed. The degree awarded will be either an M.A., M.S., or M.Ed., depending on the various area concentrations determined by each student and his advisory committee. For further information write PROFESSIONAL GROWTH DEGREE, THE GRADUATE SCHOOL, INDIANA UNIVERSITY OF PENNSYLVANIA, INDIANA, PENNSYLVANIA.

## Requirements for the Master's Degree

All students working towards a master's degree must satisfy the minimum Graduate School requirements described below.

In addition each department may have special requirements. Students should be familiar with the requirements in their own department.

Under certain circumstances Graduate School requirements for the Master's degree may be satisfied by means of substitution. In no case will a requirement be waived. Requests for the acceptance of substitutions should be made in the form of a petition to the Graduate Council. Each petition must have the approval of the Graduate Dean and the Department Chairman.

**Residency Requirement** — Each student working towards a master's degree must satisfy the residency requirement. The residency requirement can be satisfied by either full-time study (nine or more semester hours) during fall or spring semester or by completing 12 semester hours in two consecutive summer sessions plus four semester hours during the intervening academic year or 16 semester hours in two consecutive summer sessions.

**Admission to Candidacy** — The student must complete the following steps to qualify for admission to candidacy:

1. Submit an official application for admission to candidacy.
2. Complete with satisfactory grades at least six semester hours and no more than 12 semester hours of graduate work at Indiana University of Pennsylvania.
3. Submit scores from the Graduate Record Examinations.
4. Satisfy the Research Course requirement.
5. Submit a tentative program of study for the completion of the graduate program.

An applicant for admission to candidacy must be recommended for admission by his department. Admission to



candidacy requires the approval of the Graduate School.

**Transfer of Credit** — Credit for graduate courses completed at another institution may under certain circumstances be transferred to a graduate student's program at Indiana University. These courses must have been completed on the main campus of an accredited institution. Transfer credit will not be accepted for courses in which a grade lower than a B or its equivalent have been received. Transfer credit will be given only if the course was completed within the five years immediately preceding the awarding of the degree.

No more than six credits of transfer work will be accepted. A student cannot request transfer of credit until he has been admitted to candidacy. Transfer of credit must be approved by the candidate's department and the Dean of the Graduate School. Students who wish to register for courses in another institution while enrolled in a graduate degree program at Indiana University must receive permission from the Dean of the Graduate School prior to registering for these courses.

**Credit Requirement** — Each candidate for the master's degree must complete a minimum of 30 semester hours, as well as all other requirements for that degree.

**Time Requirement** — All requirements including course requirements must be completed within the five years immediately preceding the date of the awarding of the degree. Any work accepted by transfer from another institution must fall within this period.

**Scholarship** — Each candidate for the master's degree must complete an acceptable program with an overall grade point average of 3.0 (B) or better. Candidates who have completed all other requirements for the master's degree, but are below the

minimum overall grade point average will not be accepted as applicants for the degree.

**Final Six Credits** — All candidates for the Master's degree must complete the final six credits of work in courses given by Indiana University. Under certain circumstances appropriate substitutions may be made in order to satisfy this requirement. Students wishing to make substitutions may make such a request to the Graduate Council.

**Application for Graduation** — After completing all requirements for the master's degree, the candidate must file an application for graduation. All applications must be filed prior to the deadlines listed in the Calendar.

**Graduation** — At the time that all requirements for the Master's Degree have been completed, the degree will be awarded at the following graduation date. An official diploma will be available for the student at graduation following the completion of the requirements.

## Requirements for Certification Programs

Applicants admitted to the Graduate School who wish to work towards certification should check program descriptions in catalog for requirements related to their program. Students admitted to certification programs which include the completion of a master's degree will come under the same regulations described above. The Graduate School does not certify students. Certification is made upon the recommendation of the Dean of the School of Education.

## The Research Requirement

Each student should contact the departmental advisor or

Director of Graduate Study concerning requirements regarding the means of achieving the research requirement. In certain departments it may be found that the thesis is an optional requirement.

## Master of Education Curriculum Requirements

The Master of Education Degree at Indiana University of Pennsylvania operates under the following organizational structure. Such a structure assures studies in humanistic and behavioral areas as well as assuring studies in professional education and the subject specialty areas.

### I. Professional Development Area (9 s.h.)

#### A. Humanistic Studies (3 s.h.) One of the following courses:

- FE 511 Historical Foundations of Education
- FE 512 Philosophical Foundations of Education
- FE 513 Social Foundations of Education
- FE 514 Comparative Foundations of Education

(See page 71 for course descriptions)

#### B. Behavioral Studies (3 s.h.) One of the following courses:

- EP 504 Advanced Educational Psychology
- EP 573 Psychology of Adolescent Education
- EP 576 Behavioral Problems
- EP 578 Learning
- EP 580 Pupil Adjustment
- CE 529 Group Procedures (Elementary)
- CE 529 Group Procedures
- EX 531 Psychology of the Exceptional Child

(See pages 56, 47, 116 for course descriptions)

### C. Research (3 s.h.)

Graduate 515 Elements of Research  
(See page 25 for course description)

### II. Specialization Core (6 s.h.)

- FE 515 Decision Making in Curriculum Development (pg. 71)
- LR 500 Seminar in Learning Resources (pg. 85)
- or Departmental Methods or Curriculum Course(s).

### III. Subject Area and/or Electives (11-15 s. h. maximum)

## Advanced Graduate Study Beyond Master's Degree

Students may find that more courses are offered that would be of benefit to them than they are able to include in their Master's degree program. These students are encouraged to continue their training after receiving their Master's degree and this additional training will be recognized by many school districts for salary purposes and by the Bureau of Teacher Certification for certification purposes. Students are advised, however, that most graduate schools have their own residence requirements and will probably not accept more than 30 credit hours (or Master's equivalent) of graduate credit earned at Indiana toward the Doctor's degree at their institution.

Appropriate certificates may be awarded to the student who completes an additional 15 or 30 credit hours beyond the Master's degree. For purposes of this certificate these credits must be apportioned in a manner approved by the Dean of the Graduate School.

## Eligibility of Teaching Staff

Members of the teaching faculty of Indiana University of Pennsylvania with a rank of Assistant Professor or above (or equivalent), may not receive a graduate degree from this institution. This regulation applies also to any faculty member employed by this institution **full-time** at the instructor rank unless such an individual is already an approved candidate for a degree in the Graduate School of IUP at the time he is given full-time employment as an instructor. Faculty members may, however, register for work in the Graduate School and apply the credit toward graduate degrees to be conferred by other institutions.

## DOCTORAL DEGREE PROGRAMS

---

The Graduate School at Indiana University offers work leading to the degree Doctor of Philosophy in the following fields:

English and American Literature  
English Education

Work leading to the degree Doctor of Education is offered in the following field:

Elementary Education

The Graduate School requirements for the Ph.D. and the D.Ed. are available in the Graduate School Office. Students admitted to these programs are responsible for securing a copy of these regulations.

## Requirements for the Doctoral Degree

All students working towards a doctoral degree must satisfy the minimum Graduate School requirements described below. In addition, each department may have special requirements. Students should be familiar with the requirements in their own department.

Under certain circumstances Graduate School requirements for the Doctoral degree may be satisfied by means of substitution. In no case will a requirement be waived. Requests for the acceptance of substitutions should be made in the form of a petition to the Graduate Council. Each petition must have the approval of the Graduate Dean and the Department Chairman.

**Residency Requirement** — Each student working towards a doctoral degree must satisfy the residency requirement. The residency requirement can be satisfied by full-time study for at least two consecutive semesters or full-time study for at least one semester preceding or following summer session.

**Time Requirement** — A minimum of three academic years of study beyond the Bachelor's degree, or the equivalent, or two years beyond the Master's degree, must be devoted to the doctoral program.

**Credit Requirement** — A minimum of 60 semester hours of credit, exclusive of research credits, must be earned beyond the Bachelor's degree.

**Transfer Credit** — Transfer credit is limited to the credit equivalent of a Master's degree, except in special cases approved by the appropriate department chairman and the Dean of the Graduate School.

**Statute of Limitations** — After the student has been admitted to candidacy for the degree, a maximum of five years is allowed for the completion of all work.

**Admission to Candidacy** — Each student admitted to a doctoral program will be screened for candidacy after completing no less than eight credits and no more than 16 credits beyond the Master's degree with a minimum quality point average of 3.00 or higher. Departmental requirements for minimum quality point average may be set higher than the Graduate School requirement but in no case can it be lower.

**Candidacy Examination** — The candidacy examination, which may be written or oral, or both, and which may serve also as the final examination for the Master's degree (where a department requires such an examination), is administered by the department of the student's principal subject in his area or areas of specialization. This examination may not be taken until the student has completed at least one year of study beyond the Bachelor's degree. Scores on the examination must satisfy the student's dissertation committee.

**The Dissertation Committee** — The dissertation committee will supervise the student's program from the point at which he is admitted to candidacy through the defense of the dissertation. This will include the preparation of a plan of study, setting of the candidacy examination, setting of the comprehensive examination, general supervision related to satisfying degree requirements and general supervision of research proposal and the dissertation.

**The Comprehensive Examination** — The Comprehensive Examination is given to determine whether the student has

made satisfactory progress in his study, and to determine the likelihood that he will pursue research for his thesis profitably and meet training requirements for the degree. It may be both written and oral and is designed by the candidate's committee to test the student's knowledge in his major field of specialization and supporting fields. It is not necessarily confined to the areas in which the student has taken course work at Indiana or elsewhere.

**Foreign Language/Research Tool Requirement** — The candidate for the Ph.D. degree is required to demonstrate a competent reading knowledge of two foreign languages appropriate to the general area of study or (upon recommendation of his advisory committee) a reading knowledge of one foreign language together with a comprehensive knowledge of its literature.

The candidate for the D.Ed. degree is required to pass a sequence of courses in statistics as prescribed by the major department. He must also demonstrate by examination, or through evidence of training satisfactory to the major department, a competence in computer language.

**Research Proposal** — After the candidate has passed the comprehensive examination, and after he has done extensive preliminary research, he must appear before his dissertation committee to defend his research proposal. A copy of this proposal, prepared according to directions supplied by the Associate Dean for Graduate Research, must be in the hands of the committee members at least two weeks in advance of the meeting. The proposal must be found satisfactory by all members of the committee before the candidate may proceed with the dissertation.

**The Dissertation** — A dissertation is required of all candidates for the Doctor of Education degree. The thesis must demonstrate the candidate's mastery of the area of his research and embody the results of an original investigation in his principal field of study. It must give evidence of an exhaustive study of a specialized field and must provide an authoritative statement of knowledge on the subject or produce a new interpretation by rearrangement or reanalysis of existing data. The work must provide a definite contribution to knowledge of sufficient importance to warrant its publication. He may schedule in research up to three credits a semester from the time at which the dissertation subject is approved by the dissertation committee.

**Dissertation Review Meeting** — After the doctoral dissertation has been accepted by the candidate's research advisor, a finished copy is presented to the Dean of the Graduate School, from whom it circulates to all members of the dissertation committee. At a time convenient to all, the candidate shall then request a formal meeting of the dissertation committee in order to secure approval of the dissertation. The dissertation must be approved by each member of the dissertation committee.

**Publication of the Dissertation** — After the dissertation has been approved and accepted by the committee, three copies of the dissertation and two copies of an abstract must be submitted to the Graduate Council through the office of the Dean of the Graduate School. The major department may require an additional copy for the department archives. Instructions on the final form of the dissertation are available at the office of the Associate Dean for Graduate Research.

The dissertation must be microfilmed according to the plan provided by University Microfilm, Ann Arbor, Michigan.

**Re-examination** — A student who fails the candidacy examination, or any part of the comprehensive examination, or any of the examinations in foreign languages and/or research tools, may present himself for re-examination not earlier than one semester later nor later than one year after the time of the first examination. No student will be allowed a third examination without a recommendation to that effect from the department in which he has done his major work and the approval of the Graduate Council.

**Application for Graduation** — Formal application for graduation must be filed with the Dean of the Graduate School not later than two months prior to the date of the University Convocation at which the candidate expects to receive the Doctor's degree.

## **The Degrees of Doctor of Philosophy and Doctor of Education**

The Doctoral degrees are conferred for distinguished achievement in a particular field of scholarship and for demonstrated ability for independent research in a subdivision of this field. No specific number of course credits entitles a student to the degree.

Each department offering the degree has beyond the general requirements of the Graduate School its own special requirements to be met, and may, but only with the approval of the Graduate Council, waive or modify any of the general requirements. The department's detailed description of the degree should be consulted.



## COMPUTER SCIENCE

### CO 501 FUNDAMENTALS OF COMPUTER PROGRAMMING 3 credits

Introduction to digital computer programming. Development of problem solving skills using flowcharting and a problem oriented language such as, FORTRAN. 4 to 5 programs required. Description of a large problem from students field of interest for possible computer solution.

### CO 502 COMPUTERS IN EDUCATION 3 credits

Introduction to computers and computer programming in the language BASIC, with emphasis on applications in education; general models for computer usage in education, and educational institutions, case studies of specific projects in terms of approach, effectiveness, and implications for the future. No computer prerequisites.

### CO 510 PROCESSOR ARCHITECTURE AND MICROPROGRAMMING 3 credits

The logical description of computer processor structure (architecture), with emphasis on the microprogramming approach. Project assignments using the Microdata 1600 minicomputer at microlevel. Prerequisite: Permission of the instructor.

### CO 520 MODERN COMPUTER LANGUAGES 3 credits

Comparative study of the properties and applications of a range of modern higher level programming languages, including APL, SNOBOL, PL/I, ALGOL 60,

PASCAL, LISP, and TRAC. Comparison with older languages such as BASIC, FORTRAN, COBOL, and RPG. Prerequisite: Permission of the instructor.

### CO 530 INTRODUCTION TO SYSTEMS PROGRAMMING 3 credits

Concepts and techniques of systems programming with an emphasis on assembly and compilation of user programs. Representation of source language so as to facilitate the needed translation process. Exercises using the University computer and the departmental minicomputer and microcomputer. Prerequisites: Permission of the instructor.

### CO 540 LARGE FILE ORGANIZATION AND ACCESS 3 credits

The organization of large computer files for business systems, information systems, and other applications. Use of COBOL and Assembler for efficient file access. Evaluation of file access. Prerequisite: Permission of the instructor.

### CO 541 DATA BASE MANAGEMENT 3 credits

Review of data base concepts. Detailed study of data base management approaches. Comparative presentation of commercially available data base management systems. Prerequisites: Permission of the instructor.

### CO 550 APPLIED NUMERICAL METHODS 3 credits

Polynomial approximations using finite differences; applications in numerical integration and differentiation. Numerical solution of initial value ordinary differential equations; boundary value problems; difference methods for partial differential equations. The APL language will be introduced and used, along with FORTRAN, in programming selected algorithms. Prerequisites: Computer Programming, Linear Algebra, and Ordinary Differential Equations.

### CO 551 NUMERICAL ANALYSIS 3 credits

Theory of polynomial approximation; applications to quadrature formulae. Numerical solution of linear systems and computation of eigenvalues and eigenvectors using matrix transformation methods. Selected topics from differential equations, linear programming, rational and approximations, and Monte Carlo techniques. Prerequisite: CO 550.

### CO 560 THEORY OF COMPUTATION 3 credits

Formal methods for describing and analyzing programming languages and algorithms; Backus-Naur forms; productions; regular expressions; introduction to automata theory; Turing machines; recent concepts in algorithm theory. Prerequisite: Permission of the instructor.

**CO 581 SPECIAL TOPICS IN COMPUTER SCIENCE 3 credits**

Seminar in advanced topics from Computer Science; content will vary depending on the interests of the instructor and students (Consult Department for currently planned topics) May be repeated for additional credit Prerequisite: Permission of the instructor

## **SUPERVISED LABORATORY EXPERIENCE**

---

**ED 540 SUPERVISION OF STUDENT TEACHING 3 s.h.**

Designed for cooperating teachers and others working with student teachers, this course provides opportunity for the development of pertinent materials and for continuous evaluation of various aspects of the student teaching program. Stress is also given to evaluate procedures used in working with prospective teachers. Basic principles underlying an effective student teaching program are examined from a theoretical and applied viewpoint Prerequisite: Teaching certificate and teaching experience.

## **RESEARCH**

---

**GD 515 ELEMENTS OF RESEARCH 3 s.h.**

Selection of a research problem, collection of data, types of research, research report, and use of the library and computer in connection with research problems will be studied Elements of statistics are introduced. This course provides background for preparation of thesis and enables the student to become an intelligent consumer of products of educational research. Required of all students working toward the M Ed. degree

**NOTE:** Some sections of GD 515 are taught by departments exclusively for their majors. Students should check the schedule of classes and program the appropriate section.

**GD 550 THESIS 1-6 s.h.**

Thesis: Students register for this course when writing the thesis. GD 550 should be scheduled for the semester that the student plans to complete his work

Recital: Graduate students in music education may prepare and perform a formal recital under the guidance of their private teacher in their major performing area. Approval for presentation of a recital in lieu of thesis must be secured from the graduate committee of the Music Education Department. A student should

# **GENERAL SERVICE COURSES**

secure approval for this event early in his graduate program, but actual performance of recital should occur close to the end of his graduate program. GD 550 should be scheduled for semester that the student plans to give his recital.

**GD 650 DISSERTATION 1-10 s.h. — Hours to be arranged**

Students preparing a doctoral dissertation for credit must register for this course. The number of credits assigned and the extent of time for which research activity is scheduled depend upon nature and scope of the individual student's research problem as well as his total doctoral program.

**NOTE:** Credits for both GD 550 and 650 if not completed during the semester scheduled are recorded as INCOMPLETE. They remain so until the paper is approved. THEY DO NOT AUTOMATICALLY REVERT TO THE GRADE OF "F" in a specific length of time. Also, GD 550 and 650 can be programmed above the regular load

**GD 540 INDEPENDENT STUDY 1-3 s.h.****GD 545 SPECIAL TOPICS 1-3 s.h.**

**NOTE:** None of these three courses should be scheduled unless prior approval has been obtained from the Graduate School.

## **STATISTICS**

---

**GD 516 STATISTICAL METHODS I 3 s.h.**

Consists of measurement and statistical techniques as used in teaching school administration, and common educational research. Basic descriptive statistics, including measures of central tendency, variability and correlation will be developed. Reliability and validity of test scores with emphasis on use of statistical techniques studied and their interpretation.

**GD 517 STATISTICAL METHODS II 3 s.h.**

Using computer programs a wide array of statistical procedures for educational research workers will be explored. Basic concepts of statistical inference and prediction will be reviewed, including regression analysis and prediction, hypothesis testing, analysis of variance and covariance, and partial and multiple correlation. Emphasis on use of computer and interpretation of computer print-outs along with understanding techniques employed. No computer knowledge is necessary Prerequisite: GD 516 or equivalent



## ADULT-COMMUNITY EDUCATION

---

The Master's in Adult-Community Education is the first program of this type to be offered in Western Pennsylvania. The program's aim is to develop qualified professionals in the growing area of adult and continuing education. The program will serve a dual purpose: 1) it will provide experience and education which will enable the student to undertake a professional position in adult education; and, 2) it will provide a solid base of concepts which will enable the student to proceed toward a doctorate at another institution.

The program objectives are to strengthen the education of adult educators by providing: a study of the historical and current roles adult education plays in American society; an understanding of methods, techniques, and variations best utilized to facilitate adult teaching and learning; and a supervised internship in an adult education agency of particular interest to the student, with the approval of the Adult-Community Education faculty.

Courses 520 through 540 will provide the core studies coupled with Elements of Research and Thesis Writing, needed for the Master of Arts degree. Nine semester hours should be chosen around a special emphasis area. A total of 30 hours is needed to obtain the degree.



## PROGRAM CURRICULA: A to Z

### ART AND ART EDUCATION

---

### COURSE DESCRIPTIONS

---

AC 520 INTRODUCTION TO ADULT COMMUNITY EDUCATION 3 s.h.

Definition of adult community education, its history, an operational view of programs, understanding of its nature, and programming aspects.

AC 521 TEACHING IN ADULT COMMUNITY EDUCATION 3 s.h.

Psychological and sociological factors affecting adults as learners; uses and adaptations of various methods and techniques for facilitating adult learning.

AC 522 ADULT COMMUNITY EDUCATION SEMINAR 3 s.h.

Students are provided an opportunity to work cooperatively under guidance and supervision of an experienced adult educator. An intensive analysis is made of specific programs. Emphasis on literature of field and techniques of studying agency problems. Special projects are assigned to each student for intensive study.

AC 523 ORGANIZATION AND ADMINISTRATION IN ADULT COMMUNITY EDUCATION 3 s.h.

The purpose is to provide information and experience in the organization and administration of Adult Community Educational programs and how to work with the entire community structure.

AC 540 ADULT COMMUNITY EDUCATION INTERNSHIP 6 s.h.

An opportunity of integrating observation and participation, theory and practice in an adult education agency. First-hand experience will be individualized for each student. A contract will be made by the student for specific objectives to be attained. The agency shall be chosen in cooperation with the professor.

The following curricula make it possible for a mature student capable of self-direction to select a program suited to individual needs with the help of an advisor. In effect, the student and advisor can tailor-make a program of study.

### Procedure for Admission (departmental approval)

1. The student must file a "letter of intent" stating the applicant's area(s) of specialization and reasons for these choices. The area of specialization is subject to review including one revision in consultation with the student's advisory committee. This review will take place between eight and twelve study hours. This is the student's responsibility.
2. For admission to the M.Ed. program, a student must have Level I Certification or the equivalent. To be admitted to the M.Ed. and Certification or the M.A. in studio art, the candidate must possess a B.S. in Art Education, B.F.A. or B.A. with a studio major or equivalent. This will be determined by the departmental admissions committee.

## Advisory

There are four program advisors. The student will be assigned to one of the advisors who will assist him in planning his program of study.

Program Advisors	Students
Thomas J. Dongilla	A — F
Frank Ross	G — L
Robert E. Slenker	M — R
John Dropcho	S — Z

Each student will have an advisory committee of (1) the program advisor, (2) a professor from his area of specialization, (3) a faculty member of the student's choice, and (4) either the department chairman or the director of graduate studies. This committee will review the student's progress and make the recommendation for candidacy. The professor from the area of specialization will act as the committee chairman and will be chosen by the director of graduate studies or the department chairman.

## Research and Independent Study

**Independent Study:** A student may select a specific problem for one or two semester hours and pursue it in off campus study with the help of an advisor. The student will present a proposal for approval to the advisor of his choice and the director of graduate studies. If the proposal is for three study hours or more, it will be reviewed by the advisory committee and juried at the end by the same committee.

**Thesis:** Under both thesis and independent study, the final product may be a one-artist show of the minor and major area. The show will be juried by the thesis committee, which will be

composed of the advisory committee plus the associate dean for research of the graduate school. The show will be accompanied by a written statement, sketch books, catalogue, notes or other method of reporting deemed appropriate by the committee. All shows will leave some permanent evidence of their existence such as slides, photographs or catalogues.

## MASTER OF EDUCATION IN ART DEGREE

See page 20 for additional information on the M.E. degree.

### I. Professional Development Area (9 s.h.)

#### A. Humanistic Studies (3 s.h.) — One of the following:

FE 511, FE 512, FE 513, or FE 514

#### B. Behavioral Studies (3 s.h.) — One of the following:

EP 504, EP 573, EP 576, EP 578, EP 580, CE 529, CE 539, or SE 531

#### C. Research (3 s.h.)

GR 515, Elements of Research

### II. Specialization Core (6 semester hours)

Two of the following courses:

FE 515	Decision Making Curriculum Development
LR 500	Seminar in Learning Resources
AT 510	Art and the Exceptional Child
AT 512	Supervision and Administration in Art Education
AT 511	Curriculum Development in Art Education
*AT 513	Research in Art Education
AT 514	History and Philosophy of Art Education

\*Required of Master of Education Candidates.

### III. Subject Area and/or Elective

AR	Studio courses as listed in catalog. (9 semester hours)
	Art Elective (3 semester hours)
GR 550	Thesis (3 semester hours)

AT 556	Art Therapy Practicum	6
SE 565	Education of Children with Social and Emotional Maladjustments	3
GR 550	Thesis and Research	<u>6</u>
TOTAL		<u>31-36</u>

## **MASTER OF ARTS DEGREE IN ART THERAPY**

The design and philosophy of this program is to provide the theoretical and social interaction for art therapy skills, which are practiced in a clinical, educational or rehabilitative setting. A practicum or internship, under the supervision of a practicing art therapist, psychiatrist or other clinical personnel, in an applicable setting is required. The actual master's program is an interdisciplinary one of art, art therapy, psychology and related areas. Students enrolled in the program are a part of existing course offerings except for the 12 hours of Art Therapy Core Course work. Students may select electives appropriate to their backgrounds, interests and individual goals. Each student is expected to consult with their art therapy advisor before planning their particular program.

#### Semester Hours

#### A. Required Core Courses

PC 533	Psychology of Personality	3
PC 534	Abnormal Psychology	3
*PC 545	Theory and Techniques of Psychological Intervention or	3
*EP 562	Psychotherapy and Group Dynamics	3
EP 563	Projective Techniques	3
AT 554	Introduction to Art Therapy	3
AT 555	Art Therapy Seminar	3

B. Each candidate must have mastered the tools and techniques of the visual art. This will be assessed through a review of records, experience, portfolios, etc. Students weak in any area are expected to have mastered it before receiving the degree. Thus some students would be required to take more than the required hours for the program. All students will be asked to select three to nine hours from the following semester hour courses: AT 510; AR 540, 544, 547, 550, 553, 561, 562, 565, 568 or EL 545.

C. The remainder of the elective credits will be chosen from the following 3 semester hours courses: PC 530, 540, \*542, 546; EP 504, 562, 572, 576, 578, 580; SE 522, 531, 532, 538, 539, 565; HE 521; CE 535, 539, 545 or 546.

A minimum of 34 hours must be completed on the program.

\*Must have permission of instructor.

## **MASTER OF ARTS DEGREE**

Studio Major (AR 540 through AR 568)	no less than	12
Studio Minor (AR 540 through AR 568)	no less than	6
Art Seminar (AR 515)		3
Thesis (GR 515)		2-4
Electives		<u>3-6</u>
TOTAL		30

## **MASTER OF EDUCATION PLUS CERTIFICATION**

### **Undergraduate Requirements**

Elementary Certification (AR 317, EL 421, EL 422)	11
Secondary Certification (AR 317, ED 441, ED 442)	11
Elementary and Secondary Certification	22

### **Graduate Requirements**

Seminar in Learning Resources (LR 500)	3
Educational Psychology (EP 504 or EP 518)	3
Foundations of Education (FE 511, FE 512, FE 513, FE 514, FE 515)	3
Art Education (Select Two: AT 510, AT 511, AT 512, AT 514)	6
AT 513 Research in Art Education	3
GR 515 Elements of Research	2
GR 550 Thesis	3
Studio	9

## **GRADUATE MINOR IN MEDIA**

Graduate students may, with the approval of their advisor, obtain a minor in Media at the Indiana University of Pennsylvania. The minor consists of a minimum of six semester hours of work in Graduate level courses in Media and may include as many hours in Media as are approved by the student's graduate program advisor.

The minor may include any combination of courses offered by the Learning Resources Department except LR 530 Classification and Cataloging of Learning Resources, LR 560 Management of Learning Resources Programs and LR 569 Internship. These courses are designed for the professional

Media Center Manager rather than the person minoring in Media. Media minors may be designed around the list of courses under Learning Resources (Page 84). All courses are three semester hour credits except LR 580, which may be from one to three semester hour credits.

The number of semester hours in each of these programs represents the minimum. The student's committee reserves the right to recommend more.

## **COURSE DESCRIPTIONS**

### **AT 510 ART AND THE EXCEPTIONAL CHILD 3 s.h.**

Designed to consider characteristics and needs of the mentally retarded and the intellectually gifted child with particular emphasis on art aspects of their education.

### **AT 511 ART CURRICULUM DEVELOPMENT IN ART EDUCATION 3 s.h.**

A seminar and study of curricula at all levels. Particular attention given to individual needs of class participants in development of curricula pertinent to their own teaching situations. For those students who have not yet taught, theoretical and practical problems will be examined.

### **AT 512 SUPERVISION AND ADMINISTRATION IN ART EDUCATION 3 s.h.** Responsibilities, functions and duties of Art Supervisors and Administrators.

### **AT 513 RESEARCH IN ART EDUCATION 3 s.h.** Required of all Art Education majors. Reviews past and present research focusing upon the methodologies pertinent to the field. Prerequisite for this course, GR 515, is to be scheduled within the first four to eight semester hours. AT 513 must be taken as soon after as possible but within the first 12 semester hours.

### **AT 514 HISTORY AND PHILOSOPHY OF ART EDUCATION 3 s.h.** Considers art education in Europe, United States and Canada, designed to give the student background.

### **AT 554 INTRODUCTION TO ART THERAPY 3 s.h.** A survey of the concepts and theories, applications and procedures of Art

Therapy. Consideration of selections of materials and media for varying diagnostic and therapeutic problems, rehabilitary and psychiatric settings and limitations of the art therapist. Prerequisite is admission to graduate school. Basically the course will serve individuals with clinical backgrounds (psychology, social workers, child care, speech therapy, special education, art education, art therapy), and those with a primary identity in one or more of the arts.

**AT 555 ART THERAPY SEMINAR 3 s.h.**

Provides practical considerations in therapy to prepare student to enter a practicum experience. Prerequisite is Introduction to Art Therapy 554 or the equivalent.

**AT 556 ART THERAPY PRACTICUM 6 s.h.**

A professional supervisory team will guide the student in a semester experience in settings where they will practice art therapy. Discussion, analysis, planning and data gathering will be in the student's area of interest. Minimum required courses for the Art Therapy Degree are the prerequisites.

**AH 506 ANCIENT MIGRATORY ART 3 s.h.**

Survey of painting, architecture and sculpture of Prehistoric Man; Egypt and the Near East, as well as Art of Primitive Man of later times — The American Indian, African Art and the Art of Oceanic (offered in alternate semesters).

**AH 507 MEDIEVAL ART 3 s.h.**

Prerequisite Art History majors, by special arrangement. Art and architecture of Europe during Middle Ages, beginning with a study of Early Christian and Byzantine art and concluding with art of Romanesque and Gothic periods.

**AH 508 ITALIAN RENAISSANCE ART 3 s.h.**

Art History Majors, by special arrangement. Covers span of Italian art from 1400's through 1850 and Mannerist movement. Special attention paid to great masters of the period.

**AH 509 BAROQUE AND ROCOCO ART 3 s.h.**

General survey of art from 1575-1775. Will include architecture, sculpture, painting and other arts.

**AH 522 ART IN AMERICA 3 s.h.**

Surveys American art and its relation to development of American ideas and ideals.

**AH 523 SEMINAR IN ART CRITICISM 3 s.h.**

Explores various philosophic theories of art and art products. An attempt not only to relate these theories to senses and form itself, but also to technical,

psychological and cultural values. Primary concepts explored are play, illusion, imitation, beauty, emotional expression, imagination, empathy, creativity and experience. Some time will be given to forms of art that are not primarily visual, including music, dance, literature and poetry.

**AH 524 ART OF THE EAST 3 s.h.**

Nature of Eastern Art's meaning and place in contemporary world culture.

**AH 525 ARCHITECTURAL INFLUENCES IN A CONTEMPORARY SOCIETY 3 s.h.**

Experimental problems in structure and aesthetics as related to architecture. Attempts are made to search out the historical roots of many contemporary styles of architecture.

**AH 526 PRE-COLUMBIAN ART 3 s.h.**

Art of Mezo-American cultures, Mayas, Aztecs and Incas, as influenced by Oceanic migrations.

**AH 528 WORLD ART SINCE 1875 3 s.h.**

Discoveries and advances in artistic expression in modern times. Subject matter for study may be found in any or all of the arts.

*All art history courses are open as electives to all students.*

**AR 515 ART SEMINAR 3 s.h.**

Opportunity for student to discuss problems in art related to his studio interests proposals will also be prepared. For M.A. candidates only.

**AR 516 DIRECTED STUDIES 0-3 s.h.**

Offered in instances where a particular course is needed by a student, but is not on the regular schedule rotation. Approval must be secured from the advisor, the instructor involved and the Graduate Committee in Art Education.

**AR 540 GRADUATE STUDIO IN CERAMICS 3-18 s.h.**

Prerequisite — at least one year of undergraduate ceramics. All aspects of handforming, decorating, glazing and firing will be dealt with. This may include body and glaze formulation and reduction, oxidation, salt, wood and raku firing as well as thrown, coiled or slab construction or combinations thereof. Historic and contemporary ceramics and philosophies of the craft.

**AR 544 GRADUATE STUDIO IN FABRICS 3-18 s.h.**

Fundamentals of fabric construction and processes. Emphasis on experimental approaches to fabric design and construction. Designed to meet the needs of beginning as well as advanced students.

**AR 547 GRADUATE STUDIO IN JEWELRY AND METAL WORK 3-18 s.h.**

Advanced study dealing with specialized problems in design and execution of metal work and jewelry. A thesis may be developed depending upon research in one of areas relating to this field, history, materials, tools, processes or teaching techniques of the craft.

**AR 550 GRADUATE STUDIO IN SCULPTURE 3-18 s.h.**

An advanced course in which students are expected to work on more complex problems of sculpture. A student may explore one or several sculpture or modeling media.

**AR 553 GRADUATE STUDIO IN CRAFTS 3-18 s.h.**

Specialized study and experiences are related to design and execution of problems relating to wood as a crafts material. Opportunity is presented to more intensive exploration of materials and processes of this craft employing both hand and power tools.

**AR 561 GRADUATE STUDIO IN DRAWING 3-18 s.h.**

Drawing as a language and continued development of skill in communication and expression in all kinds of materials and media. Drawing as an intimate work of the artist will be stressed.

**AR 562 GRADUATE STUDIO IN OIL PAINTING 3-18 s.h.**

Traditional and contemporary methods and techniques in area of plastic painting media. Composition, in relation to the modern painters' problems. Opportunity is presented for exploration and specialization in depth as well as breadth.

**AR 565 GRADUATE STUDIO IN WATERCOLOR PAINTING 3-18 s.h.**

Painting in transparent watercolor, gouache, mixed media and with new water soluble paints, such as casein and acrylic polymer tempera. Traditional, current and experimental approaches with emphasis on design and emotional content.

**AR 568 GRADUATE STUDIO IN PRINTMAKING 3-18 s.h.**

Prerequisite — AR 217 or its equivalent. Modes, media, material, techniques and processes of graphic arts and their use in expression. The student may concentrate on intensive exploration of one media in depth or explore a number of media for breadth of experience.

Studio courses may be taken for a total of 18 semester hours in one studio. No more than 6 semester hours in one studio may be taken during any one semester.

---



---

## BIOLOGY

**Requirements for Admission** — To be admitted to the biology department, the applicant must have completed the requirements for a Bachelor's degree from an accredited college or university which should include a major in biology, one year in inorganic chemistry, one semester of organic and one semester of biochemistry, one year of physics, and mathematics through one semester calculus or statistics. Applicants with undergraduate deficiencies may be required to register for appropriate courses.

**The Requirements for Candidacy for an M.Ed. degree are —**  
The satisfactory completion of 15 semester hours of graduate work, with at least 8 hours in the biological sciences. For those students electing the thesis option, requirements are the same as those for M.S. students beginning with the second paragraph below. For those students electing the non-thesis option, requirements are the same as those for M.S. students beginning with the third paragraph below.

**The Requirements for Candidacy for an M.S. degree are —**  
The satisfactory completion of 15 semester hours of graduate work, with at least 8 hours in core courses.

The selection of an advisor and a committee of at least two additional faculty members to guide the candidate in completing a tentative program and selecting a thesis problem.

An official application for admission to candidacy, including the tentative program which has been approved by the advisor, must be submitted to the Biology Department graduate committee.

Candidates for all degrees are expected to maintain an average of not lower than B. Continuance in the graduate

program for those receiving two course grades below the minimum is contingent upon favorable review of the graduate committee.

## **CURRICULUM FOR THE MASTER OF EDUCATION DEGREE IN BIOLOGY**

---

Students working for this degree have two options, a non-thesis program with a 33 credit hour requirement and a thesis program with a 30 credit hour requirement. The only way in which these programs differ is in the credit hour requirement noted above and that the thesis is required for the 30 credit hour degree. Students working in either of these programs will complete the appropriate number of hours in accordance with the following requirements:

- I. Professional Development area (9 semester hours)
  - A. Humanistic Studies — 3 semester hours to be selected from FE 511-514.
  - B. Behavioral Studies — 3 semester hours to be selected from EP 504, 573, 576, 578, 580, CE 539, and SE 531.
  - C. Research — 3 semester hours — GR 515 required of all students (both options).
- II. Specialization Core (6 semester hours)

Six semester hours to be selected from BI 568, FE 515 and LR 500. Biology Practicum (BI 568) is strongly recommended.
- III. Subject Matter Concentration (15-18 semester hours)

Fifteen semester hours (for thesis program students) or 18 semester hours (for non-thesis program students) to be selected from BI 522 through BI 612, MI 500, GD 550, GS 570 and CH 651.

## **CURRICULUM FOR THE MASTER OF SCIENCE DEGREE IN BIOLOGY**

---

Students working for this degree will complete 30 semester hours of work in accordance with the following divisions:

- I. Core Courses — 18-20 semester hours. BI 530 (Instrumentation), BI 600 (Methods of Research in Biology), BI 612 (Seminar) and GD 550 (2-4 credits in thesis) are required courses. The remaining 10 hours of core credits come from one morphology-taxonomy course (chosen from BI 536, 540, 546, 551, 553, 554, 557, 559 or 560, 575, 576, or 578), and one physiology course (chosen from BI 558, 561, 562, 563 or 581), and one ecology course (chosen from BI 548, 556 or 586).
- II. Elective Courses — 10-12 semester hours to be selected with the approval of the advisor from BI 522 through BI 586 (with the exception of BI 568) or from related science and mathematics courses.
- III. Resident Requirements for the M.S. — The candidate must be in residence for at least seven consecutive months of full-time work or the equivalent as determined by the candidate's advisory committee.
- IV. Research Requirements for the M.S. — Every candidate must schedule Methods of Research in Biology (BI 600) as part of his research requirement. This should be done early in his program.

Every candidate must present a research thesis on an original topic approved by the candidate's advisory committee. This is programmed as GD 550 (thesis) for 2 to 4 credits.
- V. Requirements for Completion of the M.S.
  1. a. All students in the M.S. program in the Biology Depart-

ment must pass a comprehensive examination administered by the department graduate committee. The purpose of this examination is to assure that all of our graduates have a well proportioned knowledge of the field of Biology. The examination will also help point out the student's major areas of inadequate knowledge or training.

- b. This examination is offered at a specified time twice each year (toward the middle of each semester. The student may signify his intentions of taking the examination by informing the graduate committee.
  - c. The student should plan to take the entire exam in the second semester of full-time course work (or the equivalent). A second attempt, if necessary, should come in the student's third full-time semester. A third and final attempt is permitted only after petition to, and approval of the Graduate Committee.
  - d. This will be the only comprehensive examination for the Master of Science degree.
2. After the thesis has been accepted in its final written form by the candidate's committee and the Graduate School, the candidate is expected to present a public seminar reporting the results of his research.

## **COURSE DESCRIPTIONS**

In many courses in the Biology Department, additional laboratory time may be required beyond the regularly scheduled periods.

### **BI 522 BIOMETRY 3 s.h.**

The kinds and treatment of biological data and application of mathematical principles in treatment of these data, rather than a theoretical development of mathematical concepts. Data will be analyzed from representative measuring

instruments, e.g. spectrophotometry, manometry, linear measurement, etc.

### **BI 526 MOLECULAR GENETICS 3 s.h.**

Study of chemical structure of the gene in relation to its molecular function in control of specific protein biosynthesis. Emphasis will be placed on genetic systems of bacteria, fungi, and viruses. Prerequisites: genetics, organic chemistry and biochemistry or permission of instructor.

### **BI 530 INSTRUMENTATION 3 s.h.**

An introduction to instrumental technique designed to aid in development of skills employed in biological research.

### **BI 536 COMPARATIVE PLANT MORPHOLOGY 3 s.h.**

Procedures, general principles and objectives of comparative plant morphology. Emphasis on relationships between morphology, taxonomy and experimental morphogenesis in vascular plants.

### **BI 540 PROTOZOOLOGY 3 s.h.**

Common and representative genera of all groups of free-living protozoa. Emphasis is placed upon structure, physiology, ecology and life histories of these organisms. An independent research project is required.

### **BI 545 MICROTECHNIQUE 3 s.h.**

Procedures involved in production of microscope slides. Techniques of preparing whole mounts, microtome sections and serial sections of both plant and animal materials.

### **BI 546 DENDROLOGY 3 s.h.**

Study of the woody plants as to their identification, distribution, ecology, culture, anatomy, physiology, mensuration and utilization.

### **BI 548 PLANT ECOLOGY 3 s.h.**

Nature and distribution of vegetation in relation to environmental factors. Field investigations of local plant communities constitute bulk of lab work. Prerequisite: field botany, plant taxonomy or general knowledge of local flora.

### **BI 551 TAXONOMY OF PLANTS 3 s.h.**

Includes collection, identification, and classification of vascular plant species with special emphasis on family characteristics and phylogeny. Prerequisite: Plant Biology.

### **BI 553 PRINCIPLES OF ANIMAL TAXONOMY 3 s.h.**

Study of classification system and its application to identification of animals. Basic principles of taxonomy rules of nomenclature, a synoptic history of



classification and the "old" and "new" taxonomy will be included. A taxonomic field study is required.

**BI 554 ADVANCED ORNITHOLOGY 3 s.h.**

A detailed study of bird populations, behavior, and movement including the annual cycle. Prerequisites: identification by site and song of local birds.

**BI 556 ANIMAL ECOLOGY 3 s.h.**

Effect of environmental factors on animals, animals as members of communities, their trophic relationships, their ecologic distribution, population dynamics, and aspects of animal behavior. A field or lab problem is required.

**BI 557 ANIMAL MORPHOGENESIS 3 s.h.**

Factors that influence and control the differentiation of organs, tissues, and cells. Emphasis is placed on experimental procedures and methods. Prerequisites: Embryology of Comparative Anatomy, Organic Chemistry or Biochemistry, and Genetics.

**BI 558 ENDOCRINOLOGY 4 s.h.**

Phylogeny, embryology, micro-anatomy, and physiology of the endocrine tissues. Prerequisites: course in anatomy and physiology.

**BI 559 ADVANCED ENTOMOLOGY 3 s.h.**

Insect morphology, including external and internal organization of different species of insects. Comparisons and contrasts among species will be included as well as the relationships of social insects and their adaptations. Prerequisite: Introductory Entomology.

**BI 560 HERPETOLOGY 3 s.h.**

A comprehensive survey of the classes Amphibia and Reptilia, including their classification, structure, origin, evolution, phylogenetic relationships, distribution, and natural history. Special emphasis is placed on the herpetofauna of Pennsylvania.

**BI 561 GENERAL PHYSIOLOGY 4 s.h.**

A molecular approach to quantitative analysis of the mechanisms of functional operation and coordination in living organisms. Emphasis is directed toward the chemical and physical principles operating at the primary functional units of organization. Prerequisites: course in Physiology, Biochemistry, Calculus. (Two hours lecture and four hours lab.)

**BI 562 ANIMAL PHYSIOLOGY 4 s.h.**

The events of digestion, molecular transport of nutrients and wastes, gaseous exchange, excretion, muscular movement and control by endocrines and nervous tissue. Prerequisites: Animal Biology.

**BI 563 PHYSIOLOGY OF PLANTS 4 s.h.**

A comprehensive study of physiological bases for organization and function of living plants. Current literature is emphasized. Lab exercises are designed to be complementary to lecture material and to be of practical value. Prerequisite: Biochemistry. Closed to students with undergraduate Plant Physiology. BI 351

**BI 568 BIOLOGY PRACTICUM 2 s.h.**

Designed for high school biology teacher. Preparation of culture media and solutions, problems and techniques in dealing with demonstration material, handling and housing of plants and animals, safety in the lab and field, and maintenance of equipment. Emphasis on development of on-going experiments and research projects. Handbooks and other resource materials useful in the "lab approach" to biology will be given special attention.

**BI 572 RADIATION BIOLOGY 3 s.h.**

Basic aspects of nuclear physics, phenomena of radioactive isotopes and biological effects of such isotopes. Lab work utilizes instruments for detection and measurement of radioactive nuclides used in biological experimentation. Prerequisites: two years Biology, one year Physics, and General, Organic and Biochemistry.

**BI 575 MAMMALOLOGY 3 s.h.**

A general discussion of mammals emphasizing systematics, distribution, and structural and functional modifications related to evolution of this group. Lab work samples numerous techniques that can be applied to mammalian biology. A paper is required.

**BI 576 PARASITOLOGY 3 s.h.**

The parasitic protozoa, flatworms and roundworms. Major emphasis upon species infesting man and includes their structure, physiology, ecology, life cycles and pathogenicity. Lab includes some dissection of vertebrate hosts and recovery of their parasites. Anthropods involved in parasite transmission are also included. Prerequisites: one year Biology, Vertebrate and Invertebrate Zoology.

**BI 578 MYCOLOGY 3 s.h.**

The systematics, morphology, and physiology of fungi, with emphasis on economically important and experimentally useful Myxomycophyta and Eumycophyta. Lab includes physiology and genetics of fungi and collecting, culturing and identifying of representative species. Not open to students with undergraduate BI 381, Mycology.

**BI 581 MICROBIAL PHYSIOLOGY 4 s.h.**

Physiological reactions involved in growth, reproduction and death of microbes. Metabolism of carbohydrates, proteins, vitamins and fats, enzymes,

**BUSINESS**

oxidation-reduction potentials, energy relationships, membrane potentials and required nutrients. Prerequisites: Microbiology and Biochemistry.

**BI 582 PATHOGENIC MICROBIOLOGY** 3 s.h.

Study of disease caused by microorganisms with emphasis on human pathogens. Both epidemiology and aspects of host-parasite relationships. Lab stresses methods of isolation and identification of pathogens. Prerequisite: Microbiology.

**BI 583 IMMUNOLOGY** 3 s.h.

Physical and chemical properties of antigens and antibodies; nature of antigen-antibody interactions; mechanism of antibody formation; and immune reaction in disease. The lab employs serological techniques. Prerequisites: Biochemistry and Microbiology.

**BI 586 TAXONOMY AND ECOLOGY OF BACTERIA** 3 s.h.

Isolation, cultivation, classification and ecology of major groups of bacteria. Special emphasis to principles of bacterial taxonomy and ecology. Prerequisite: Microbiology.

**BI 599 SPECIAL STUDIES** 1-3 s.h.

Consists of independent research studies under guidance of an instructor. Maximum credit in any one area is six (6) semester hours. Time and class hours will be arranged by instructor involved. Prerequisite: Permission of instructor

**BI 600 METHODS OF RESEARCH IN BIOLOGY** 2 s.h.

The student will select and plan a research project or thesis problem in biological area; will develop familiarity with general biological literature, will conduct a literature search on his selected topic; will write a thesis or project proposal following Graduate School guidelines and the AIBS style manual; and will give an oral presentation of the proposal.

**BI 612 BIOLOGY SEMINAR** 1 s.h.

An opportunity to become acquainted with various areas of current research in biology. One hour meeting per week.

**MI 500 PROBLEMS IN MARINE SCIENCE** 3 s.h.

Independent study for the advanced student in marine sciences. Topics are selected from areas offered by the Marine Consortium and studies are directed by the instructor in that area. Prerequisite: Consent of Instructor.

**GD 550 THESIS**

See entry under "GENERAL SERVICE COURSES", page 25.

The School of Business offers programs leading to the degrees of (1) Master of Education in Business and (2) Master of Science in Business. The Master of Education program is designed primarily to permit the business teacher to broaden his understanding of the business world and to study his teaching procedures in the light of new experience. The Master of Science program is designed primarily for businessmen, industrial personnel, and government employees who are interested in continuing their academic study in business.

Upon admission to the Graduate School, each student is tentatively assigned an advisor. The advisor assists the student in scheduling his program of studies. If the tentative assignment is mutually agreeable to the student and the advisor, the arrangement is continued.

Prior to his admission to candidacy for the degree of Master of Education in Business or Master of Science in Business, the student must take the Graduate Record Examination aptitude test. Information about this examination can be obtained from the Graduate School.

Business teachers with the proper prerequisites can earn, at the graduate level, certificates in Marketing, Data Processing, and Distributive Education. They may also earn an endorsement of their present vocational certificate which qualifies them to be a Cooperative Education Teacher.

Distributive Education teachers seeking to broaden their background in marketing, merchandising, and management may pursue the Master of Education Degree emphasizing these areas. Individuals without an undergraduate degree in business may pursue graduate work leading to certification as Distributive Education teachers.

## **CURRICULUM FOR MASTER OF EDUCATION DEGREE IN BUSINESS**

The thirty hours required for the degree must be distributed as follows:

### **I. Professional Development Area (9 s.h.)**

A. Humanistic Studies (3 s.h.) — One of the following:

FE 511, FE 512, FE 513, or FE 514

B. Behavioral Studies (3 s.h.) — One of the following:

FP 504, EP 573, EP 576, EP 578, EP 580, CE 539, or SE 531

C. Research (3 s.h.)

GR 515, Elements of Research

### **II. Specialized Core (6 s.h.)**

BU 550 (3 s.h.) and 3 s.h. from the following: BU 560\* or BU 561\*

\*Students seeking certification in Distributive Education may substitute BU 555 or BU 556.

### **III. Subject Area and/or Thesis (15 s.h.)**

BU 510 (3 s.h.) and 12 s.h. from the "Business" courses list in the catalog or BU 510 (3 s.h.), GR 550, and 9 s.h. from the "Business" courses list in the catalog.

Courses in the Specialized Core Area and Subject Area should be scheduled early in the student's program.

## **CURRICULUM FOR MASTER OF SCIENCE DEGREE IN BUSINESS**

Students must complete 30 s.h. for the degree distributed as follows:

### **I. Business Concentration Area (18–21\* s.h.)**

BU 510 (required of all students, BU 501–507, 512, 514,

520–525, 527, 531–539, 541–545, 570, 580–582. Courses in this area should be scheduled early in the student's program.

### **II. Business Related Area (3 s.h.)**

CE 546, EC 501, 520, 525, 530, 541, 545, 550, 580, GE 542, 552, HE 530, 560, 561, MA 575, PC 514, and 558. Other business related courses may be taken subject to the approval of the advisor and the director of graduate studies.

### **III. Research Area (6–9 s.h.)**

GD 516, BU 585 (Seminar in Methodology of Business Research), and GR 550 (Thesis)\*\*.

\*21 hours are required of students selecting a non-thesis option.

\*\*Optional.

## **COURSE DESCRIPTIONS**

### **BU 500 ACCOUNTING SYSTEMS**

3 s.h.

Accounting principles applied to constructing accounting systems. Special attention given to problems of management as they relate to accounting systems by developing a system to give management the information desired for effective operation of business.

### **BU 501 PRINCIPLES OF TAX ACCOUNTING**

3 s.h.

Introduction to federal tax laws which develops an understanding and working knowledge of federal tax laws and regulations applicable to individuals, single proprietorships, and partnerships.

### **BU 502 ADVANCED TAX ACCOUNTING**

3 s.h.

Develops further knowledge of federal income tax law with emphasis upon corporate returns, estates and trusts, federal estate tax and gift tax. Prerequisite: BU 501 or equivalent.

### **BU 503 FINANCIAL STATEMENT ANALYSIS**

3 s.h.

Detailed analysis and interpretation of financial statements with advanced problems supporting theory presented. Particular types of statements as they apply to public utilities, industrials, and moneyed corporations are introduced. Prerequisite: Bu 352, Corporate Accounting, or equivalent (9 semester hours).

**BU 504 BUDGETING AND COST ANALYSIS** 3 s.h.  
Theory, preparation, and use of budgets, analysis of cost variances, direct costing, and extensive analysis of various cost-control and profit-planning programs. Prerequisite: BU 353, Cost Accounting, or equivalent.

**BU 505 ADVANCED ACCOUNTING** 3 s.h.  
Study of accounting problems of specialized nature, including the application of funds statement, consignments, installment sales, receivership accounts, agency and branch accounting, and corporate combinations. Prerequisite: BU 352, Corporate Accounting, or equivalent (9 semester hours).

**BU 506 AUDITING** 3 s.h.  
Study of auditing theory and practical application of auditing standards and procedures to the verification of accounts and financial statements, working papers, and audit reports. Prerequisite: BU 353, Cost Accounting.

**BU 507 MANAGEMENT ACCOUNTING** 3 s.h.  
Designed for management personnel who are not accountants but need to understand and use accounting information in their decision-making process. Emphasizes management of accounting information that requires the application of full cost data, differential costs and revenues, and responsibility accounting data. (Available to students with less than nine hours of accounting.)

**BU 510 BUSINESS COMMUNICATIONS AND REPORT WRITING** 3 s.h.  
Study and comparison of effective written communications. Emphasis on positive approach, clear statements, good form and structure. Organization and preparation of reports used in education, business, and government. Techniques of collecting, interpreting, and presenting information useful to executives.

**BU 512 OFFICE ORGANIZATION AND MANAGEMENT** 3 s.h.  
Duties and responsibilities of office manager; principles of practical office management and their application. Includes survey and analysis development of manuals and their use; selection, training, pay and promotion of office employees; controlling expense and measuring office efficiency; quality and quantity standards; purchase and use of equipment; and report writing.

**BU 514 EXECUTIVE SECRETARIAL TRAINING** 3 s.h.  
Stresses application of secretarial skills and knowledges and importance of good human relations in offices. Develops methods of complimenting secretarial training so that high school graduates may become competent, proficient, and well-adjusted secretaries.

**BU 520 RETAIL ORGANIZATION AND MANAGEMENT** 3 s.h.  
Directed toward problems of retail management. Includes present-day trends in retailing, personnel management, merchandise control, pricing, promotion, services, accounting, and expense control.

**BU 521 MARKETING** 3 s.h.  
Study of risks, costs, and methods of distribution including analysis of such problems as research, competition, pricing, and laws in marketing goods from manufacturer to producer to consumer.

**BU 522 SALES PROMOTION AND ADVERTISING** 3 s.h.  
Basic principles of sales promotion and advertising together with consideration of the major problems encountered in management of activities. Emphasizes determination of basic promotional strategy; selection of advertising media; determining advertising appropriations; and advertising research.

**BU 523 MARKETING RESEARCH** 3 s.h.  
Research procedures and techniques applicable to problem solving in marketing field. Critical analysis of research techniques with considerable emphasis placed on use of information gathered. Prerequisite: Marketing.

**BU 524 INTERNATIONAL MARKETING** 3 s.h.  
International marketing is analyzed, with consideration given to the significance of government regulation, organization structures of export and import enterprises, and credit policies. Prerequisites: Marketing and Consumer Behavior.

**BU 525 THE PROCESSES OF COLLECTIVE BARGAINING** 3 s.h.  
Survey of labor movement history in United States, current laws, principles and procedures in use in modern collective bargaining and evolving trends in union-management relations in all segments of United States economy including blue and white collar, private and public sector.

**BU 527 INDUSTRIAL MARKETING** 3 s.h.  
Considers major activities involved in marketing of industrial goods and services. Includes industrial marketing system, demand for industrial goods, marketing information needs of industrial firm, product strategies for industrial goods, channel strategies for industrial goods, pricing strategies for industrial goods, promotional strategies for industrial goods, and industrial marketing implementation and control. Prerequisite: Marketing and Marketing Management.

**BU 531 PRINCIPLES OF INVESTMENT IN SECURITIES** 3 s.h.  
Introduces many forms of investment possibilities which exist. Attention is

given to operation of stock markets, concepts and terminology of investing, mutual funds and their function, investment clubs and problems involved in making investments through brokers, bankers, and stock promoters.

**BU 532 CURRENT BUSINESS ECONOMIC PROBLEMS 3 s.h.**

Provides opportunity for students to gain insights into relationship of business to many facets of society, impact of major societal groups upon business, and nature of obstacles that businessmen face in day-to-day operations. Review and analysis of basic economic concepts and principles will serve as a basis for study of selected economic problems of current interest and concern to business and society.

**BU 533 CASE PROBLEMS IN BUSINESS LAW 3 s.h.**

Deals with solution of case problems as applied to various topics in the field of business law. Prerequisite: BU 235, Business Law I, or equivalent.

**BU 534 CONSUMER ECONOMIC PROBLEMS 3 s.h.**

Program for the education of intelligent consumers in how to gain the maximum satisfaction from goods and services. An effort will be made to develop an appreciation of the problems of the producer and distributor as well as those of the consumer.

**BU 535 MANAGEMENT INFORMATION SYSTEMS 3 s.h.**

Introduces techniques involved in organizing computer based management information systems and the concepts of systems analysis and design including problem definition, data gathering, information analysis, presentation techniques, implementation planning, systems control, and documentation is presented. Relationship between these techniques and the management of modern business organization is stressed. Exercises and case studies used to develop student's ability to use the various systems methods presented in solving informational problems of modern business.

**BU 536 BUSINESS DATA PROCESSING I 3 s.h.**

Covers the theory and operation of remote computer terminals. The BASIC language is used to write computer programs for Business Mathematics and Bookkeeping problems for the Business Education and Distributive Education teacher. Interactive programs utilizing the computer will be used for this training.

**BU 537 BUSINESS DATA PROCESSING II 3 s.h.**

Develop the principles of COBOL language programming with specific applications for the teachers of Business and Distributive Education. The course builds upon the basic concepts of data processing developed in BU 536. Special emphasis placed on computer-based instruction and programmed instruction as

used with the remote terminals. The value of library programs will be demonstrated. Prerequisite: BU 536 or its equivalent.

**BU 538 BUSINESS SYSTEMS ANALYSIS I 3 s.h.**

Study of the techniques used in systems analysis involving systems definition, feasibility, quantitative, and evaluative techniques of business. Prerequisite: Business Data Processing, Business Information Systems, Business Systems Technology, Business Problem Application I, and Assembly Language Programming.

**BU 539 BUSINESS SYSTEMS ANALYSIS II 3 s.h.**

Study of business sub-systems, such as production, inventory, and marketing with the requirement of a documented study of a sub-system of an outside business. Prerequisite: Business Problem Programming, Business Problem Application II, and Business Systems Analysis I.

**BU 540 INTERNSHIP IN OFFICE AND DISTRIBUTIVE OCCUPATIONS 4 s.h.**

Students who do not have extensive business experience are given the opportunity to work full-time for six weeks during the summer in a business position under University supervision. Evening seminars are held weekly to discuss problems related to work experience program. A written report of the experience will be required.

**BU 541 PRINCIPLES OF MANAGEMENT 3 s.h.**

Study of development, nature, and meaning of basic functions of management. Emphasis will be placed upon functional activities of an organization at all levels of management and the application of these principles.

**BU 542 HUMAN RELATIONS IN BUSINESS 3 s.h.**

Study of human motivations and their constructive application to all aspects of business. Psychological basis of human relations will be developed as it applies in the business world. Major topics include employer-employee relations, labor relations, stockholder relations, customer relations, community relations, and public relations.

**BU 543 MANAGEMENT DEVELOPMENT AND TRAINING 3 s.h.**

A survey of the major aspects, trends, and methodologies in management development and training as these specializations are being practiced in enterprises in the advanced western nations.

**BU 544 BUSINESS PROBLEM PROGRAMMING 3 s.h.**

The study of business-oriented high-level languages of COBOL and RPG, and

solving problems in accounting, marketing, statistics, and finance. Prerequisite: Business Data Processing, Business Information Systems, Business Systems Technology, Business Problem Application I, and Assembly Language Programming.

**BU 545 CASE PROBLEMS IN BUSINESS HUMAN RELATIONS 3 s.h.**

Application of principles of personnel management in solution of problems in human relations. Students will be required to solve realistic problems in human relations found at all echelons of management. Emphasis will be placed upon actual problems encountered in day-to-day work activities. Prerequisite: BU 542 or its equivalent

**BU 550 PRINCIPLES AND PROBLEMS OF BUSINESS EDUCATION 3 s.h.**

Surveys basic principles and practices of business education. Among the topics considered are: history of the high school business program, purposes, attitudes of management and labor toward education, relationship of general education to business education, and trends in the field.

**BU 553 ADMINISTRATION AND SUPERVISION OF VOCATIONAL EDUCATION 3 s.h.**

An introductory course in Administration and Supervision of Vocational Education. Historical background and problems connected with budgeting procedures and practices, teacher qualification, certification, selection and assignments, in-service programs, rating and evaluating vocational teachers, classroom and personnel supervision, vocational teachers conferences, curriculum construction and revision, selection and maintenance of equipment, establishing and using standards of achievement, guidance selection, placement and follow-up programs will be covered in this course.

**BU 554 COOPERATIVE VOCATIONAL EDUCATION 3 s.h.**

To develop administrative procedures necessary for planning, organizing, and coordinating cooperative vocational education programs. Major topics include historical background of cooperative vocational education programs, program development, supervision, public relations, the teacher coordinator and his job, labor laws governing such a program, evaluation of the total program, and desired educational outcomes. Leads to Cooperative Education Teacher certification.

**BU 555 PRINCIPLES OF DISTRIBUTIVE EDUCATION 3 s.h.**

To acquaint prospective teacher-coordinators with objectives of vocational distributive education, including state plan and curriculum. To understand problems in organizing, administering, and supervising a complete cooperative program.

**BU 556 METHODS OF TEACHING COURSES IN DISTRIBUTIVE EDUCATION 3 s.h.**

Acquaints students with basic principles of group and individual instruction in various subject matter areas, as well as methods of presentation. Students prepare unit plans, lesson plans, demonstrations, and evaluations.

**BU 560 IMPROVEMENT OF INSTRUCTION IN SECRETARIAL COURSES 3 s.h.**

Provides business teachers with a working philosophy and practical approach to teaching of secretarial subjects — shorthand, typewriting, transcription, and office practice. Teaching procedures basic to development of vocational proficiency in shorthand, typewriting, transcription, and office practice including: content, methods, teaching aids, available instructional materials, measurement of skills, and standards of achievement.

**BU 561 IMPROVEMENT OF INSTRUCTION IN ACCOUNTING AND BASIC BUSINESS COURSES 3 s.h.**

Problems and techniques in teaching accounting and basic business courses, including objectives, place and purpose of accounting and basic business courses, curricular organization, teaching techniques, instructional materials, resource materials, course standards, testing, and evaluation. For experienced or prospective high school, vocational-technical school, and community college teachers of accounting, general business, consumer economics, business mathematics, economics, and business principles and management.

**BU 570 ECONOMIC BACKGROUNDS OF BUSINESS 3 s.h.**

Overview of economic environment in which business and other agencies operate. Students will gain a broad perspective of business operation through such topics as business organization and management, consumption of goods, business risks, business cycle, budgeting and investments. Not open to business majors, but is designed as a general studies course for other programs.

**BU 576 SPECIAL STUDIES IN BUSINESS AND DISTRIBUTIVE EDUCATION 1-6 s.h.**

Special topics in business and distributive education. Topics will be announced well in advance of registration.

**BU 580 FINANCIAL INSTITUTIONS AND MARKETS 3 s.h.**

Review of entire structure of financial institutions, money, and capital markets of which the business enterprise is both a supply and demand factor, and structure and dynamics of interest-rate movements. Prerequisite: Monetary Economics and Principles of Investments.

**CHEMISTRY****BU 581 INVESTMENT ANALYSIS**

3 s h

Integrates work of various courses in finance areas and familiarizes student with tools and techniques of research in the different areas of investments  
Prerequisite: Corporate Accounting, Finance, and Principles of Investments

**BU 582 SEMINAR IN FINANCE**

3 s h.

Covers topics in all areas of finance by using recent articles, cases, discussions, speakers, and a financial simulation game. Designed to bring together all aspects of finance. Prerequisite: Finance, Principles of Investments, Finance II, and one advanced finance course.

**BU 599 INDEPENDENT STUDY**

1-6 s.h.

This course should not be scheduled unless prior approval has been obtained from the Graduate School

The Chemistry Department offers three different degree programs on the masters level: the Master of Education and Master of Science degrees in chemistry and the Master of Arts degree in industrial chemistry.

The Master of Education program is designed for the secondary school teacher to afford the teacher the opportunity to gain more knowledge of chemistry and keep abreast of a rapidly changing field. The major emphasis is on subject matter. The student may enroll on either a full- or part-time basis.

The Master of Science degree is for the chemist who intends to pursue further graduate work leading to a Ph.D. or who intends to work as a professional chemist and desires to become more competent in chemistry. This degree is research oriented and successful completion of an experimental thesis is required. Also, two consecutive semesters of residency are required.

The Master of Arts degree is designed to meet the needs of the chemist who is currently a full time employee of the chemical industry and who wishes to strengthen his knowledge in those areas relevant to his employment. The emphasis here is on course work.

Four core courses, one in each of the areas of inorganic, organic, analytical, and physical chemistry, are required in the M.S. and M.A. programs.\* Beyond this point the programs separate with the M.S. and M.A. student taking more specialized work in chemistry along with an experimental research problem. The M.Ed. candidate will take broadening courses which will make him a more effective teacher. The industrial chemist will take more specialized work in chemistry and will be



encouraged to take courses outside the sciences if they are relevant to his particular area of employment.

**General Admission Requirements** — Candidates for admission to the Master's program must have a Bachelor's degree from an accredited college or university and an undergraduate grade point average of 2.5 or better. Students should have completed one year each of general chemistry, analytical chemistry, organic chemistry, physical chemistry\*\*, general physics, and calculus. Students wishing to specialize in biochemistry should also have had an undergraduate course in biochemistry. Students deficient in the above areas of study may also be admitted provided these deficiencies are made up concurrently with the student's graduate studies.

The general requirements for admission to candidacy for a Master's Degree are discussed on page 18 of this bulletin.

\*An exception to this is afforded the student wishing to specialize in biochemistry.

\*\*Only one semester of physical chemistry is required for education majors.

## **CURRICULUM FOR MASTER OF ARTS IN INDUSTRIAL CHEMISTRY**

I. Industrial experience — Before the degree of M.A. in Industrial Chemistry can be granted the applicant must have had three years of full time employment in an approved area of the chemical industry. Only those years of employment acquired after obtaining the bachelor's degree may be counted.

This industrial experience meets the university residency requirements.

II. Course requirements include 14 hours in the following: CH 610, 620, 630, 640 and 600.\*

\*The M.A. candidate is not required to attend all of the day time seminars but is required to present two seminars and is expected to attend the evening seminars.

III. Course electives (10 to 16 s.h.) — Any graduate level courses selected from the natural sciences and mathematics with the permission of the candidate's advisor. Special permission from the Chemistry Department's Graduate Committee will be required for courses outside the sciences.

IV. Research Requirements (0, 2, or 4 s.h.)

A. Research not required — a total of 30 credits in suitable courses being acceptable.

B. No-Committee Thesis (2 s.h.) — Refer to the Graduate School Catalog for the steps in satisfying the research requirement by submitting a "Two Hour, No-Committee Thesis".

C. Committee Thesis (4 s.h.) — If the candidate is doing research at his place of employment and if he has the permission of his supervisors he may present his research as a proposal and if accepted he may write up his research when it is complete and submit it as a thesis. It is expected that his supervisor will serve as an ex officio member of the proposal and thesis committees.

## **CURRICULUM FOR MASTER OF EDUCATION DEGREE IN CHEMISTRY**

Students working for this degree with a major in Chemistry will complete a minimum of 30 semester hours of work in



accordance with the following divisions:

I. Subject Area and/or Thesis — 15–18 semester hours

- A. Elective Chemistry Courses — 11–18 semester hours of work selected from CH 500 and CH 600 level courses.
- B. Thesis — 0–4 semester hours. After consultation with his advisor the student may choose
  - 1. No thesis (if the student chooses this option he must earn a minimum of 18 credits in A above.
  - 2. A no-committee thesis — 2 semester hours.
  - 3. A committee thesis — 4 semester hours.

II. Professional Development Area — 9 semester hours

- A. Humanistic Studies — 3 semester hours in one course selected from the following: FE 511, 512, 513, or 514.
- B. Behavioral Studies — 3 semester hours in one course selected from the following: EP 504, 573, 576, 578, 580, CE 539 or SE 531.
- C. Research — 3 semester hours required of all students GR 515.

III. Specialization Core — 6 semester hours — CH 505 and one of the following courses: FE 515, LR 500, or SC 572.

## **CURRICULUM FOR MASTER OF SCIENCE DEGREE IN CHEMISTRY**

---

- I. Residence Requirements — The student shall be in residence a minimum of two consecutive semesters of full-time work. Students working as graduate assistants and/or making up deficiencies can expect to be in residence for at least two years.

II. Course Requirements — for those specializing in analytical, inorganic, organic, or physical chemistry.

- A. Required Courses (15 semester hours), including CH 610, 620, 630 and 640. One additional course designated by 600 chemistry numbers selected from one of the four core areas for 3 hours.

B. Electives (6 semester hours)

The electives may be selected from the areas of chemistry, physics, biology, and mathematics by the student with the advice and approval of his advisor.

CH 500, Special Studies, can provide a maximum of three (3) semester hours toward the 30 semester hours necessary for the degree.

III. Course Requirement — for those specializing in biochemistry.

- A. Required Courses (12 semester hours), including CH 630, 623, 546 and BI 526.
- B. Electives (at least 9 semester hours), including at least one of the following: BI 556, 562, 563, 581 or 588 and any graduate courses in the Natural Sciences of Mathematics mutually agreed upon by the student and advisor.

IV. Research and Thesis Requirements: GD 550 for four hours.

- A. The research work must lead to an acceptable thesis, approved by the student's advisor and supervisory committee, and defended in a final oral examination.
- B. Seminar — 2 semester hours required in CH 600.
- C. CH 690 for at least three hours.

## COURSE DESCRIPTIONS

**CH 500 SPECIAL STUDIES** variable s.h.  
Intensive survey of literature in a particular area as well as individual instruction on recent advances in chemical instrumentation, methods of research, and specialized subject areas. To be arranged with instructor.

**CH 505 NEW APPROACHES TO TEACHING HIGH SCHOOL CHEMISTRY** 3 s.h.  
Chem Study and C.B.A. approaches will be investigated. Individualization of chemistry and application of various teaching materials and techniques used in individualizing chemistry. Environmental chemistry and other relevant topics to better understand the chemical basis of our current environmental problems.

**CH 533 CHEMICAL LITERATURE** 3 s.h.  
Periodicals, encyclopedias, handbooks, abstracting journals and other books dealing with various divisions of chemistry will be studied. Students are required to conduct a literature search on a selected topic. Lecture — 3 hours.

**CH 576 RADIOCHEMISTRY** 3 s.h.  
Basic aspects of nuclear structure, phenomena of radioactive isotopes and chemical effects of such isotopes. Concurrent lab work utilizing instruments for detection and measurement of radioactive nuclides used in chemical experimentation. Lecture-laboratory — 3 hours.

**CH 600 SEMINAR** 1 s.h.  
A study of modern chemical research and research techniques. Scientific communications, including the role of the science library in research. Lecture — 1 hour.

**CH 602 CHEMISTRY IN MANUFACTURING PROCESSES** 3 s.h.  
A course on the applications of chemistry to manufacturing processes. Lecture and field trips. Lecture — 3 hours.

**GD 550 THESIS** 2 or 4 s.h.  
Students register for thesis course when writing the thesis. GD 550 should be scheduled for the semester that the student plans to complete this work.

**CH 599 INDEPENDENT STUDY** Variable s.h.  
Available to students who seek to deepen their knowledge in some specific aspect of chemistry. The student must discuss the nature of the independent study with a faculty member having expertise in the area prior to registration. Special attention to development of new ideas and new ways of presenting scientific principles. Prerequisites: Chemistry I, II, Physics I, II.

## INORGANIC

**CH 610 INORGANIC CHEMISTRY (core course)** 3 s.h.  
Theoretical inorganic chemistry and, in particular, structure, periodicity, coordination chemistry, bonding and chemistry of non-aqueous solvents. Lecture — 3 hours.

**CH 611 COORDINATION CHEMISTRY** 3 s.h.  
Chemistry of transition metals, their compounds and complex ions. Lecture — 3 hours.

**CH 614 INORGANIC PREPARATIONS** 3 s.h.  
Preparation of inorganic compounds expressing different techniques of synthesis. Designed for those students who have chosen to do inorganic research but have never had a prep course. One lecture per week and six hours of lab.

**CH 615 CURRENT TOPICS IN INORGANIC CHEMISTRY** 3 s.h.  
Representative elements, chemistry of rare earth elements, inorganic spectroscopy, group theory or any other special areas of chemical interest.

## ANALYTICAL

**CH 522 ADVANCED INSTRUMENTAL METHODS OF ANALYSIS** 3 s.h.  
A survey of modern instrumental analysis including electrical, spectrophotometric, x-ray, gas chromatography, and other methods. (Open to M.S. and M.A. candidates by permission only.)

**CH 620 ANALYTICAL CHEMISTRY (core course)** 3 s.h.  
theoretical principles of analytical chemistry. Lecture — 3 hours.

**CH 621 ELECTROANALYTICAL CHEMISTRY** 3 s.h.  
Theoretical and practical considerations of polarography, potentiometric, amperometric, coulometric, and conductometric methods of chemical analysis. Lecture — 2 hours. One 4-hour lab per week.

**CH 622 SPECTROCHEMICAL METHODS OF ANALYSIS** 3 s.h.  
Application of the emission and absorption of light in ultraviolet, visible and infrared regions to problems involving inorganic and organic molecular structure, analysis, equilibrium and reaction rates. Lecture — 2 hours. One 4-hour lab per week.

**CH 623 PHYSICAL AND CHEMICAL METHODS OF SEPARATION** 3 s.h.  
Application of chromatographic methods to the quantitative separation and

analysis of chemical systems. Topics will include gas, column, paper, and ion exchange chromatographic methods and other methods of separation as time permits. Lecture — 2 hours. One 4-hour lab per week.

## ORGANIC

**CH 630 ORGANIC CHEMISTRY (core course)** 3 s.h.  
Principles of physical chemistry will be applied to the study of organic reaction mechanisms. Lecture — 3 hours.

**CH 631 POLYMER CHEMISTRY** 3 s.h.  
A study of the chemistry of macromolecules, both natural polymers and synthetic polymers, including mechanisms of polymerization. Lecture 3 hours.

**CH 632 STEREOCHEMISTRY** 3 s.h.  
The effect of spatial arrangement of atoms on the chemical and physical properties of molecules. Lecture — 3 hours.

**CH 635 CURRENT TOPICS IN ORGANIC CHEMISTRY** 3 s.h.  
With selections to meet the needs and interests of the students, possible topics may include: reaction mechanisms, molecular spectroscopy, stereo chemistry, natural products, heterocyclics, polymer chemistry and organic synthesis.

## PHYSICAL CHEMISTRY

**CH 640 PHYSICAL CHEMISTRY (core course)** 3 s.h.  
A basic introduction to topics covered in advanced graduate courses. Lecture — 3 hours.

**CH 641 STATISTICAL THERMODYNAMICS** 3 s.h.  
The application of statistical mechanics to chemical systems. Lecture — 3 hours.

**CH 642 CHEMICAL KINETICS** 3 s.h.  
An introduction to empirical and theoretical chemical kinetics. Lecture — 3 hours.

**CH 643 QUANTUM CHEMISTRY** 3 s.h.  
An introduction to quantum theory and its application to atomic and molecular structure, and spectroscopy. Lecture — 3 hours.

**CH 645 CURRENT TOPICS IN PHYSICAL CHEMISTRY** 3 s.h.  
With selections to meet the needs and interests of the student, possible topics

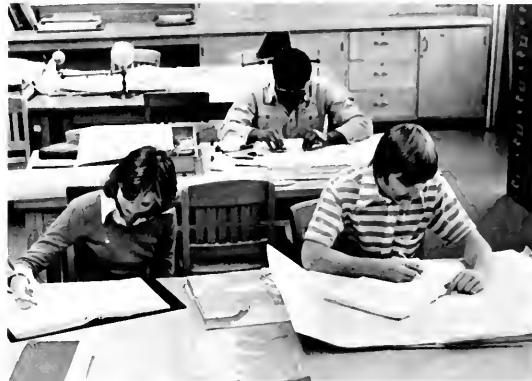
may include: quantum mechanics, molecular structure, chemical thermodynamics, statistical mechanics and chemical kinetics.

## BIOCHEMISTRY

**CH 546 BIOCHEMISTRY** 3 s.h./sem.  
Courses covering and emphasizing most recent developments in the areas of biochemistry such as amino acids, carbohydrates, lipids, nucleic acids, proteins, enzymes, metabolism and metabolic control. Lecture — 3 hours.

**CH 651 BIOCHEMISTRY TOPICS** 3 s.h.  
A discussion of areas such as carbohydrates, lipids, amino acids, proteins, nucleic acids, kinetics, and metabolism. Lecture — 3 hours.

**CH 652 ENZYMES** 3 s.h.  
A study of enzymes to include isolation, kinetics, classification, specificity, mechanisms, cofactors, structure and formation. Lecture — 3 hours.



## **COUNSELOR EDUCATION**

---

Department offerings include Master of Arts and Master of Education degree programs and Commonwealth approved programs leading to certification as elementary school counselors, secondary school counselors, and supervisors of guidance services.

### **DEGREE PROGRAMS**

The Master of Arts degree programs (Counseling Services; Student Personnel Services in Higher Education) are designed for students seeking preparation leading to counseling and counseling-related employment in non-school settings and higher education. The Master of Education degree program is the appropriate base for students seeking preparation leading to certification as elementary or secondary school counselors.

Program selection is determined by the interests, qualifications, and goal purposes of the applicant, and all degree programs require the completion of 30 credit hours of coursework, thesis optional.

### **CERTIFICATION PROGRAMS**

**Elementary and Secondary School Counselors** — To qualify for institutional endorsement and Commonwealth certification in these programs, the student must complete a 42 credit-hour, competency-based program to include field experience and all requirements for the Master of Education degree.

While teaching experience is not an absolute requisite for admission, students should have an understanding of educational philosophy, objectives, and practices. They should also understand the basic principles of psychology, sociology,

and related fields, and possess sufficient background in mathematics to comprehend the statistical materials and methods with which the counselor must be familiar. Prospective students should include introductory courses in these areas in their undergraduate preparation.

**Supervisor of Guidance Services** — This is a sixth year, competency-based, management oriented program designed for the preparation and certification of guidance services supervisors in grades K-12. The applicant must be a certified school counselor with the master's degree and have at least one year of full-time experience as a school counselor.

### **STUDENT ADVISORY**

Students should not attempt to plan their own programs. A departmental advisor, assigned to each student, assists with the preparation of course schedules and all other concerns in a manner consistent with Graduate School and Department policy.

### **CONTENT AREAS**

All students enrolled in Master's level programs will complete a basic core of courses supported by suitable electives.

Courses comprising the basic core will consist of GD 515, GD 516, GD 550, CE 531, and CE 533 for a total of 12-14 semester hours. See course descriptions under appropriate department programs.

Master of Arts in Counseling Services program majors will complete the core, plus CE 537 and CE 541, and 10-12 semester hours in electives.

Majors in the Master of Arts in Student Personnel Services in Higher Education program will complete a modified core to

include GD 515, GD 516, CE 537, CE 541, SPS 526, SPS 527, SPS 528, SPS 529, and 7–9 semester hours in electives.

Students seeking certification as elementary school counselors will complete the core and CE 525, CE 526, CE 527, CE 529, CE 538, CE 540, CE 555 plus one course in Foundations of Education and six semester hours in electives.

Students seeking certification as secondary school counselors will complete the core and CE 535, CE 536, CE 537, CE 538, CE 539, CE 541, CE 555 plus one course in Foundations of Education and six semester hours in electives.

Supervisor of guidance services program majors will complete courses BU 541, CS 502, CE 542, CE 543, CE 544, CE 545, CE 546, CE 550, and CE 551.

Courses outside the student's major may serve as suitable electives, but only with the approval of the advisor and the course instructor. CE 556 (Independent Study) may be scheduled with the approval of the faculty advisor and the Department Chairman. For additional information about individual programs contact the department chairman.

## COURSE DESCRIPTIONS

CE 531 PHILOSOPHY AND PRINCIPLES OF GUIDANCE 3 s.h.

Overview of genesis and development of guidance in American education, including philosophical concepts, psychological theories, cultural and social influences, and current practices.

CE 533 EVALUATION TECHNIQUES 3 s.h.

Basic concepts utilized in testing, emphasizing data concerning purposes and types of tests, test administration, test scoring, test validity, and test selection. Prerequisites: CE 531, GD 516.

CE 525 CASE STUDY TECHNIQUE (Elem) 3 s.h.

CE 535 CASE STUDY TECHNIQUE 3 s.h.

Principles, problems, methods, and content involved in understanding the individual student and his developing self-concept. Prerequisites: CE 531, 533.

CE 526 INFORMATION SERVICE (Elem) 3 s.h.

CE 536 INFORMATION SERVICE 3 s.h.

Emphasis is placed upon the relationship between the information service and other guidance services; theories related to decision making; use of information in process of educational, social, and vocational development; collection, evaluation, and uses of information; and programming of information activities. Prerequisite: CE 531.

CE 527 CONSULTATIVE AND COUNSELING THEORY (Elem) 3 s.h.

CE 537 COUNSELING AND CONSULTATIVE THEORY 3 s.h.

Theories, objectives, principles, and practices of counseling and consulting with individuals are covered. Interview techniques are presented for maximum development in subsequent practicum experience. Prerequisite: CE 533.

CE 538 MANAGEMENT OF THE GUIDANCE SERVICES 3 s.h.

Emphasis is placed upon planning, organizing, coordinating, directing, and controlling functions of management as applied to guidance services within framework of the school's philosophy and statement of objectives. Prerequisites: CE 531, 533, 535, 536, 537, 539.

CE 529 GROUP PROCEDURES (Elem) 3 s.h.

CE 539 GROUP PROCEDURES 3 s.h.

Emphasis will be placed upon nature of groups, techniques involved in development of dynamics of group behavior, formation and operation of groups, organization and structure of groups, and influence of group upon the individual as they relate to common problems. Prerequisite: CE 531.

CE 540 SUPERVISED PRACTICUM (Elem) 3 s.h.

CE 541 SUPERVISED PRACTICUM 3 s.h.

Practicum experience in counseling techniques, including interviews, observations, written reports, and group interaction. Students work with counselees appropriate to their level of preparation and goals. Emphasis is both developmental and problem-centered. Since aspects of all component guidance services are included, this is a terminal course in the core sequence.

**CE 542 SCHOOL SERVICES 3 s.h.**

Designed to analyze critically written statements of educational philosophies and objectives of selected elementary and secondary schools, students will prepare a written statement of educational philosophy and objectives for a school in which he is or has been employed as a guide for the critical examination of philosophies and objectives for school services — instructional, administration and supervisory, and pupil personnel.

**CE 543 PLANNING PRINCIPLES 3 s.h.**

Students will develop written statements of guidance services philosophy and objectives in order to establish program elements for each of the guidance services which will be analyzed to determine personnel needs, facilities, and materials necessary, in-service program requirements, and budgetary demands. Prerequisites: BU 541, CE 542.

**CE 544 ORGANIZING PRINCIPLES 3 s.h.**

Techniques to relate tasks to personnel will be examined to develop structural patterns necessary to initiate guidance services programs in districts of various sizes and compositions. Prerequisite: CE 543

**CE 545 HUMAN RELATIONS AND COMMUNICATIONS 3 s.h.**

Students will develop skill in programming various guidance services for the school year throughout the district. Human relations principles and techniques to elicit cooperation from personnel involved and skills in communicating with personnel participating in the program of guidance services and with the public will be developed.

**CE 546 ENCOUNTER & SENSITIVITY IN COUNSELING 3 s.h.**

Participants will explore their own individuality and human potential as they enter into authentic, honest and trusting relationships within the context of a small group experience encouraging recognition and expression of feelings as an effective way of understanding one's self and impact on others. Enrollment is with consent of instructor

**CE 550 SUPERVISION OF GUIDANCE WORKERS 3 s.h.**

A practicum designed to provide allied experience in supervision of school counselors, elementary and secondary, in preparation of supervisors of guidance services. Primary focus is on supervision of counseling service content and process, but components of all guidance services are included. Enrollment is with consent of instructor.

**CE 551 EVALUATION OF GUIDANCE SERVICES 3 s.h.**

Students will acquire skills to evaluate program of guidance services as it is

related to the educational objectives and guidance services objectives of the school including initiation of appropriate research and preparation and reporting of recommendations based upon findings. Prerequisite: CE 544.

**ST 526 HISTORY AND ADMINISTRATION OF HIGHER EDUCATION IN THE UNITED STATES 3 s.h.**

Growth and trends of higher education in the United States with emphasis on twentieth century: Administrative problems and educational issues, characteristics of higher education in economic analysis and cost, financing, level of investment and assessing returns, some administrative problems as related to legal aspects of higher education as it affects University staff, public and students with some court cases reviewed and compared.

**ST 527 STUDENT PERSONNEL SERVICES IN HIGHER EDUCATION 3 s.h.**

An overview of student personnel work in higher education, highlighting its history, purposes, organization, philosophy, ethical values, current and past social and legal issues in institutions of higher learning, including various student services such as admissions and registration, data processing and scheduling, housing and food services, career counseling and placement, college unions and student activities, sources of financial aid, fraternities and sororities, intramural athletics and other programs.

**ST 528 INTERNSHIP IN STUDENT PERSONNEL SERVICES 3 s.h.**

Practical experience in the following areas of student personnel service: Dean of Students, Dean of Men, Dean of Women, Housing Office, Admissions, Registration, Placement, Financial Aid, Student Union, and related areas. Participants will include representatives from the cooperating staff.

**ST 529 SEMINAR IN STUDENT PERSONNEL ADMINISTRATION 3 s.h.**

Review in depth the problems and trends in various areas of student personnel service. Research projects are required.

**ST 530 SEMINAR ON CURRENT TRENDS IN STUDENT AFFAIRS 3 s.h.**

Current trends in Student Affairs administration including new legal aspects, human sexuality, drug scene, minority programs, new trends in counseling services, changes in residence hall living, changing patterns of student financial aid, etc. Each student enrolled in the course will study in depth two areas and complete a research type project in one.

## **CRIMINOLOGY**

---

The Department of Criminology offers a program of studies leading to a Master of Arts Degree in Criminology. Students may choose from a wide variety of course offerings or select specialized areas of concentration in Corrections, Criminal Justice, or Law Enforcement. In addition, students may complete elective courses in fields directly related to criminology. The program is designed for individuals who are currently employed within the criminal justice system and students who are interested in pursuing careers in criminology and related disciplines. The department also offers courses open to students following other degree programs in the Graduate School. Law Enforcement Educational Program funds may be available dependent upon a candidate's qualifications.

### **MASTER OF ARTS IN CRIMINOLOGY**

---

#### **Admission to the Graduate School**

Students interested in applying for admission should write to the Graduate School, Indiana University of Pennsylvania, Indiana, PA 15701, for information regarding application procedures and admission requirements.

#### **Department Admission Requirements**

In addition to meeting the requirements for admission to the Graduate School, a student intending to work toward a Master of Arts in Criminology will be required to have the following

prerequisite professional preparation:

- A. Students should demonstrate a sound understanding of the criminal justice system; and
- B. Students should have practical experience within the system of justice or have pursued an undergraduate degree in criminology, or completed graduate or undergraduate studies in a related field.\*

\*Where the Department determines that a deficiency in background experiences or educational requirements exists, a student may be permitted (with permission of the Director of Graduate Studies) to complete additional studies to eliminate the deficiency.

### **CURRICULUM FOR THE MASTER OF ARTS IN CRIMINOLOGY DEGREE**

---

Students may choose between a Thesis or Non Thesis curricula depending upon individual preference and needs.

#### **I. Thesis Degree Requirements (30 s.h.)**

##### **A. Core Courses (11-13 s.h.)**

- |        |                                |
|--------|--------------------------------|
| CR 501 | Criminological Theory (3 s.h.) |
| CR 598 | Graduate Readings (3 s.h.)     |
| CR 502 | Crim Research or               |
| GD 515 | Elements of Research (3 s.h.)  |
| GD 550 | Thesis (2-4 s.h.)              |

##### **B. Criminology Electives (9-12 s.h.)**

Students are required to complete a minimum of 9 s.h. of criminology graduate courses in addition to the core course requirement.

## C. Electives (6-9 s.h.)

Students may select electives from any of the approved graduate level courses.

## II. Non-Thesis Degree Requirements (36 s.h.)

## A. Core Courses (6 s.h.)

CR 501 Criminological Theory (3 s.h.)

CR 598 Graduate Readings (3 s.h.)

## B. Electives (30 s.h.)

15 s.h. Criminology courses

15 s.h. in approved graduate level courses

**ELECTIVES**

The following courses have been approved as acceptable electives. Where a student, for special needs, requires courses other than those listed, special permission from the director must be obtained prior to scheduling. Students must be able to justify the necessity of scheduling such courses and their relation to criminology and the student's interest or vocation. Generally, only six (6) credits may be accepted under this variance.

GR 516 — 530

PS 551 — 554 — 558 — 559

PC 553 — 534 — 536 — 540 — 545 — 546

SO AN 562 — 563 — 564 — 565 — 590 — 593

CE 531 — 533 — 537 — 546

**COURSE DESCRIPTIONS**

CR 501 CRIMINOLOGICAL THEORY

3 s.h.

An intensive review of selected criminological theories with emphasis on in-

depth understanding of relevant theoretical approaches to crime and criminally deviant behavior.

CR 502 INTRODUCTION TO CRIMINOLOGICAL  
RESEARCH SS 514 or SO 515

2 s.h.

Analysis of research methodology, approaches to study of crime and deviant behavior. Course structure will emphasize research design and development, methods of scientific field inquiry, objective evidence, utilization of library resource materials, and techniques of research presentation.

CR 503 SEMINAR ON POLICE ADMINISTRATION

3 s.h.

Innovative techniques of police organization and personnel management discussed. Review of practical difficulties involved in adapting cybernetic scientific technology and advanced personnel administration to existing police establishment.

CR 504 PERSONNEL RECRUITMENT AND SELECTION  
IN LAW ENFORCEMENT

3 s.h.

Techniques of man-power recruitment and personnel selection coupled with in-depth review of police applicant testing procedures.

CR 505 SPECIAL TOPICS LAW ENFORCEMENT

3 s.h.

At option of instructor, course will provide in-depth review of significant police problems, e.g., interdepartmental friction, etc. May also be utilized to explore specific social problems and/or deviant behavior which has influence on administration of police services. Can be taken more than once depending on topic.

**TOPICS TO BE CONSIDERED:****Seminar on Crime in American Society**

A thorough familiarization with nature and extent of crime problem in United States with particular attention to statistics of criminality, traditional white collar and organized crime, and current societal response to contemporary trends.

**Seminar on the Role of Law Enforcement in a Free Society**

Detailed review of government's police powers coupled with critical analysis of structure and function of major investigative



and law enforcement agencies at federal, state, and local level. Resource utilization, inter-departmental cooperation, and breakdown of police isolation stressed with collateral emphasis on unity of purpose in professional law enforcement.

### **Seminar on Constitutional Law: Its Effects on the Administration of Criminal Justice**

Comprehensive analysis of constitutional foundations of contemporary jurisprudence; major thrust of seminar being a detailed understanding of recent Supreme Court decisions.

### **Advance Principles of Supervision**

An action course designed to acquaint potential supervisor with theoretical and practical methods of problem solving within a bureaucratic structure; accent will be practical and problematic situations involving group solutions to supervisory problems through role-playing and psychodrama.

### **Advanced Public Safety Administration**

Explores major elements of public safety administration; emphasis on the feasibility of police and fire unit consolidation, safety unit coordination at major disasters, unity of command in the rendering of public safety services.

### **Theory: Arrest, Search and Seizure**

Theory of arrest, search and seizure: its constitutional basis, its practical applicability, and its actual implementation. Relevant Supreme Court Decisions will be studied.

### **Command: Decision Making and the Police Executive**

The accent will be on police executive development with the elements of executive decision making stressed. Role playing

and psychodrama will be utilized to stimulate situations and conditions requiring executive level deliberations.

### **Organized Crime**

Critical evaluation of organized crime in the United States; emphasis on nature, structure, and social function of La Cosa Nostra. Elements of police intelligence operation reviewed as an adjunct of the functional analysis of organized crime.

### **Organization: The Police Community Relations Unit**

Investigation of the purpose, function, and organization of Police-Community Relations Unit of a police department. Emphasis is on effective public relations procedures, alternative organizational designs, and circumvention of both police and community opposition to formulation of the unit.

### **Seminar in the Control of Deviant Group Behavior**

Clinical review of dynamics of intergroup relations, with emphasis on gang and/or mob behavior. Will explore latest sociological theories concerning group formation and control, and stress police actions in crisis situations.

CR 510 SEMINAR IN COMMUNITY COLLEGE TEACHING 2 s.h.  
Designed to prepare community college instructors through an emphasis on the objectives, materials, techniques, and evaluation of general education programs in criminology. Prerequisites: Criminology major or minor

CR 511 PREDICTIVE METHODS OF PROBATION AND PAROLE 3 s.h.  
Gives student actual practice in using behavioral prediction devices. Each student will have opportunity to develop experimental models and research the results

CR 512 LABORATORY IN BACKGROUND ANALYSIS AND PRE-SENTENCE REPORT WRITING 3 s.h.  
Will provide background information concerning structure, function, and use

of pre-sentence investigation. Gives practical training in compilation and analysis of social case histories. Each student, under direct supervision, will develop, organize and write several pre-sentence investigations

**CR 513 SEMINAR ON CRIME AND DELINQUENCY PREVENTION**

3 s.h.

Exploration of most effective ways of preventing crime and delinquency. Will stress remedial social action, law enforcement and correctional procedures and techniques of community arousal and involvement.

**CR 514 DEVELOPMENT OF INSTITUTIONAL TREATMENT SERVICES**

3 s.h.

In-depth study of institutional treatment methods; including a review of the most successful approaches to curbing recidivism problem. Will investigate therapeutic community and milieu management concepts as well as individual treatment procedures.

**CR 515 SPECIAL TOPICS/CORRECTIONS**

3 s.h.

At option of instructor, course will provide in-depth review of significant correctional problems, e.g., interdepartmental friction, etc.; may also be utilized to explore specific social problems and/or deviant behavior which has an influence on administration of correctional services. May be taken more than once depending on topic.

## TOPICS TO BE CONSIDERED:

### A Seminar on Corrections

Intensive review and evaluation of the correctional system and its integral components — probation, institutionalization and parole.

### Correctional Administration

A basic delineation of current trends in correctional administration; will emphasize effective techniques of organization and management in correctional services.

### Crime and Its Social Treatment

Elaboration of crucial elements of deviant behavior and

review of broad based community rehabilitation and treatment services; will analyze utilization of self-help groups, therapeutic communities, half-way houses, community rehabilitation centers, referral agencies, out patient psychiatric services, etc.

### Seminar on Psychological Abnormality and the Correctional Process

Will examine relationship between psychological abnormality and commission of crimes and/or establishment of criminal careers. Emphasis on severe mental disturbances.

### Inter-Agency Cooperation and Resource Development

Accent on development of inter-agency cooperation and resource utilization; will emphasize major referral agencies — public and private — and familiarize students with techniques of resource utilization with relation to rehabilitation and treatment of the offender.

### Interviewing Techniques: Correctional Emphasis

Students learn and, under expert supervision, practice advanced techniques of correctional interviewing. Techniques to be stressed: establishment of rapport, utilization of empathy, elements of identification, and principles of catharsis and ventilation.

### Group Methods In Corrections

Will emphasize para professional group therapy techniques which are adaptable to the correctional process. *This topic will be developed in conjunction with the Psychology Department.*

**CR 516 ADVANCED SEMINAR ON PROBATION AND PAROLE**

3 s.h.

Provides a thought provoking review of functional relationships between

various branches of government and the correctional process, and a thorough analysis of probation and parole processes and their ancillary components. Stresses practical problems of client supervision, resource referral, and termination of supervision services.

**CR 530 INTERNSHIP IN CRIMINAL JUSTICE 3-6-12 s.h.**

Each student placed with a selected criminal justice agency to participate actively in activities of the unit. Student may earn up to 12 semester hours credit. Students required to submit an acceptable paper explaining experiences in the internship program. By appointment only.

**GD 550 THESIS 2 or 4 s.h.**

With advice and consent of faculty advisor, the student will — prior to graduation — participate in preparation of a thesis which is related to his subject matter concentration at the graduate level. Students required to strictly adhere to scientific method, and present findings in a suitable form.

**CR 598 GRADUATE READINGS IN CRIMINOLOGY 3 s.h.**

With faculty supervision, students will read at least six major criminological texts and participate in a seminar situation for the purpose of discussing the reading materials, CR 501.

**CR 599 INDEPENDENT STUDY IN CRIMINOLOGY 1-3 s.h.**

The student, with advice and approval of instructor, reaches a significant problem in Criminology. By appointment. Criminology major or minor.

## ECONOMICS

The Department of Economics does not currently offer a graduate degree. The graduate courses offered by the Department are a component of both the M.Ed. and M.A. in Social Science degrees.

## COURSE DESCRIPTIONS

**EC 501 FOUNDATIONS OF MODERN ECONOMICS 3 s.h.**

Not open to students who have credits of C or better in undergraduate EC 121-122 sequence. Survey of micro and macroeconomics designed for student who is not already well-grounded in the field.

**EC 520 HISTORY OF ECONOMIC THOUGHT 3 s.h.**

Examination of social, political, intellectual, and economic origins of work of prominent past economists, and of the content and impact of their work. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics or permission of the instructor.

**EC 525 MONETARY ECONOMICS 3 s.h.**

Structure and function of monetary institutions including the Federal Reserve System, commercial banks, and financial intermediaries, theory of monetary economy, and monetary policy. Prerequisite: EC 501, or credits of C or better in 6 s.h. of Principles of Economics or permission of the instructor.

**EC 530 LABOR ECONOMICS 3 s.h.**

History, structure, and operations of trade unions and employer organizations, major Federal labor legislation; collective bargaining theory; wage determination, current labor problems. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics or permission of the instructor.

**EC 534 ECONOMICS OF CORPORATE DECISIONS 3 s.h.**

Applies economic theory to corporate decision making. Topics include corporate objectives, profit maximization, economic measurement and forecasting. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics or permission of the instructor.

**EC 541 CONTEMPORARY ECONOMIC ISSUES 3 s.h.**

Problem areas of domestic economy. Primary focus in each semester is determined by student-instructor interest. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics or permission of the instructor.

**EC 545 INTERNATIONAL ECONOMICS 3 s.h.**

Nature of world economy, international trade, international investment, current international institutions, and foreign economic policy of the United States. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics or permission of the instructor.

**EC 550 COMPARATIVE ECONOMIC SYSTEMS 3 s.h.**

Basic economic issues in capitalism, socialism, communism, and fascism, and their relationships to political and social problems. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics or permission of the instructor.

**EC 580 SEMINAR 3 s.h.**

Seminar in selected economic issues or problems. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics or permission of the instructor.

## **EDUCATIONAL PSYCHOLOGY**

---

Application for admission to the department programs is made to the Graduate School Office. After admission to the Graduate School, the Candidate must secure the Departmental Application Packet, which includes further information from the Chairman, Department of Educational Psychology. Potential Candidates will be interviewed by the Program Admissions Committee after the departmental application, copies of transcripts from the Graduate School Office, and official Graduate Record Examination scores, including Education are received. An advisor will be assigned to approved Candidates and no course work may be scheduled without the advisor's approval. The advisor may approve alternate courses to meet required competencies.

Admission to the programs will be based on evidence of previous scholarship and/or potential for academic success, personal and professional qualities deemed necessary for adequate functioning as a specialist in education and motivation for professional excellence. Continued enrollment once begun, is expected. Exceptions to this policy must be filed in writing and approved by the student's program committee.

Candidates for admission to Master's degree programs must have a Bachelor's Degree from an accredited institution. Candidates for admission to the Post-Master's certification program must have a Master's degree and an Instructional or Specialist certificate from an accredited institution or have approved educational experiences.

## **MASTER OF EDUCATION IN EDUCATIONAL PSYCHOLOGY**

---

The Master of Education Degree in Educational Psychology Program (32-36 s.h. depending upon choice of thesis or non-thesis option) has been designed to give the interested student a broad theoretical and practical background in the areas of education and psychology. There are four majors in this degree.

General requirements are: All students will take the Professional Development Area (total of 9 s.h.), Humanistic Studies (3 s.h.), select one FE 511, 512, 513, 514; Behavioral Studies (3 s.h.), select one EP 504 or 578, 573, 576, 580, CE 529 or 539, SE 531; Research (3 s.h.), GR 515 (Ed. Psych. section).

### **Educational Psychology M.Ed. Majors (additional courses all by advisor's permission)**

**Pre-school Psychology** — (23-27 s.h.) is designed to prepare the interested student for entrance into the post-masters certification program. Professional Specialization courses (6 s.h.) EP 518, 562, Subject Area and/or Elective (17-21 s.h.) EP 504, 578, 576, 572, 573, 580, 550, 581, AC 520, ED 501, PC 533, 540, SE 522, 539, 565, CE 525 or 535, SH 502, 535, GD 550.

**Human Development and Learning** — (23-27 s.h.) is designed to prepare the teacher to be more effective in the classroom and to have a balanced program in Educational Psychology. Professional Specialization courses (6 s.h.) EP 518, 504 or 578, Subject Area and/or Electives (17-21 s.h.) EP 504, 578, 576, 572, 573, 580, 550, 581, AC 520, ED 501, PC 533, 540, SE 522, 539, 565, CE 525 or 535, SH 502, 535, GD 550.

**Educational Evaluation and Research** — (23-27 s.h.) is designed to provide a broad theoretical and practical background in Educational Evaluation and Research. Professional Specialization (6 s.h.) EP 518, 562, Subject Area and/or Electives (17-21 s.h.) EP 504, 578, 576, 572, 573, 580, 581, GD 516, 517, 550, AC 520, CO 502.

**Home School Visitor (School Social Worker)** — 23-27 s.h.) is designed for persons seeking the competencies for Pennsylvania certification. The candidate must be knowledgeable in the field of Educational Psychology as well as basic social work theory and practice. Supervised experience within school and community agency settings are integral components of the program. Professional Specialization (6s.h.) EP 552A, 581, Subject Area and/or Electives (17-21 s.h.) EP 518, 552, 562, 504, 578, 581, 572, 573, 576, 580, AC 520, GD 516, GD 550.

## **Adult Community Education**

The Master's in Adult Community Education is designed to develop qualified professionals for the growing field of adult and community education. It serves a dual purpose: (1) to provide education and experience which will enable the student to acquire competencies to become a practitioner in a school-community setting; (2) to provide a solid foundation of theory and practice which will enable the student to proceed toward a doctoral degree.

A minimum of 30 credits with an optional thesis is required. Courses include: AC 520, 521, 522, 523, 540, GD 515, 550, EP 581, Electives — EP 518, 504, 562, 576, 578. These and others

from other disciplines may be taken with permission of the advisor.

For AC course descriptions see page 27.

## **Certificate of Advanced Study in School Psychology Post-Master's Degree Program — 30s.h.**

A Certificate of Advanced Study in School Psychology may be issued to those students who have completed a minimum of 60 graduate hours, 30 of which should be approved graduate hours in the university beyond the master's degree, and who have met all of the requirements for certification as a school psychologist.

The School Psychology Program is designed for those individuals who are seeking certification as public school psychologists in the Commonwealth of Pennsylvania. The objectives of the program are to train competent individuals who will demonstrate (1) an ability to evaluate and prescribe, (2) an understanding of individual and group dynamics, (3) an understanding of the educational system and learning processes, and (4) an ability to apply all acquired competencies. There is required a comprehensive exam, practicums and internship experiences. Certification as a school psychologist is recommended when all of the indicated role competencies are demonstrated by the candidate.

The Professional Specialization studies courses for the program for 21-24 s.h. are EP 512, 513, EP 563 and EP 550-EP 551 (12-15 s.h.). The other approved courses for 9 s.h. to meet competency requirements are SE 531, SE 566 or EP 581, and PC 534. For final certification other courses and/or additional Internship hours may be required by the School Psychology Committee to satisfy competency requirements.

## COURSE DESCRIPTIONS

---

EP 504    ADVANCED EDUCATIONAL PSYCHOLOGY                      3 s.h.

An upward extension of Educational Psychology with a systematic review of current research and learning theory with emphasis on classroom application.

EP 512    INDIVIDUAL EVALUATION I                                      3 s.h.

Individual testing and professional competency in Binet and related scales of intelligence and includes techniques of report writing, professional role studies, and communication procedures. Prerequisite: For approved School Psychologist candidates.

EP 513    INDIVIDUAL EVALUATION II                                      3 s.h.

Individual testing and professional competency in the Wechsler Scales and other pertinent tests. Prerequisite: EP 512 — For approved School Psychologist candidates.

EP 518    INTERPRETATION OF EDUCATIONAL AND  
PSYCHOLOGICAL TESTS                                                      3 s.h.

Designed to provide the individual with information necessary to understand, evaluate, and interpret results of educational and psychological tests accurately and meaningfully.

EP 550    INTERNSHIP I                                                              3 s.h.

Supervised experiences in Educational Psychology. Prerequisite: For approved candidates.

EP 551    INTERNSHIP II                                                              3-12 s.h.

Clinical and field experience with mentally and physically handicapped and emotionally disturbed children. Prerequisite: For approved School Psychologist candidates.

EP 552    INTERNSHIP — HOME AND SCHOOL VISITOR  
(SCHOOL SOCIAL WORKER)                                                      3-9 s.h.

Supervised experiences for Home and School Visitor (School Social Worker) candidates. Prerequisite: For approved candidates

EP 562    PSYCHOTHERAPY AND GROUP DYNAMICS                      3 s.h.

A systematic study of major techniques of counseling and psychotherapy, and application of principles of group dynamics to educational settings.

EP 563    PROJECTIVE TECHNIQUES                                              3 s.h.

An introduction to various projective techniques currently used. Prerequisite: For approved School Psychologist candidates.

EP 572    PSYCHOLOGY OF CHILDHOOD EDUCATION                      3 s.h.

Studies relationship which physical, social, emotional, and intellectual development have on theory and practice of childhood and pre-adolescent education.

EP 573    PSYCHOLOGY OF ADOLESCENT EDUCATION                      3 s.h.

Concerned with study of significant characteristics of adolescence, and understanding the role of cultural influences on formation of behavior.

EP 576    BEHAVIOR PROBLEMS                                                      3 s.h.

Explores behavior problems encountered in classroom situations and gives causes, characteristics and some remedial techniques.

EP 578    LEARNING                                                                      3 s.h.

Explores learning theories and educational application in working with learning problems in the classroom.

EP 580    PUPIL ADJUSTMENT                                                      3 s.h.

Considers human adjustment and mental health in relation to causative factors and explores dynamics of personal and interpersonal relationships.

EP 581    SPECIAL TOPICS IN EDUCATIONAL  
PSYCHOLOGY                                                                      3 s.h.

Designed for those students who wish to do independent research in special areas. Prerequisite: department chairman permission.

## **ELEMENTARY EDUCATION**

---

The Elementary Education Master's curriculum is designed to assist the graduate student to broaden or strengthen his background in academic areas and in professional education. The graduate student may elect one of several specialized fields for study, including curricula in general education, early childhood education, and reading. If courses are carefully selected in the general elementary education curriculum, a concentration in areas such as language arts, social studies, mathematics or science can be achieved. A graduate student may exercise much freedom in designing his program.

At the Master of Education level, the student is assigned to an advisor as soon as he is admitted to the Graduate School. At this time, the student and advisor outline a tentative graduate program. (Note that GD 515, Elements of Research, should be taken during the first 12 hours of graduate work.)

Acceptance into the Graduate School permits a student to take course work in a department. If a student wishes to become a degree candidate, he must complete the Application to Candidacy form and forward this form to the Graduate School after having successfully completed six hours of course work in the department.

## **MASTER OF EDUCATION DEGREE IN ELEMENTARY EDUCATION**

---

Students working toward a Master's degree in Elementary Education should complete 30 hours of work (thesis option) for 36 hours of work (non-thesis option) from among the following areas:

### **I. Professional Development Area**

- A. Humanistic studies — Three semester hours are required from FE 511 through FE 514.
- B. Behavioral studies — Three semester hours are required. Selection of courses include EP 504, EP 573, EP 576, EP 578, EP 580; CE 529, CE 539; or SE 531.
- C. Research — All students are required to take GD 515 Elements of Research.

### **II. Specialization Core — Students must take 6 s.h. in a specialization core. Recommended courses include EL 531, EL 532, EL 551, EL 552.**

### **III. Electives — Students may elect 21 s.h. from any courses with an EL prefix. ED 500 and ED 501 can also be included within this subject area.**

- A. Students who elect a non-thesis option must take 3 s.h. from one of the following: EL 580, GR 516, or CO 502.

**Credit for Workshops —** The Elementary Education Department will accept a maximum of 6 hours of workshop credit for the purpose of meeting degree requirements, where appropriate, in any graduate program. Credit for workshops, however, must be approved by the Coordinator of the Master's Program in which the student is enrolled.

## **GRADUATE PROGRAM IN EARLY CHILDHOOD EDUCATION**

---

Students seeking Instructional Level II Certification with a specialization in Early Childhood Education or a Master of Education Degree in Elementary Education specializing in Early Childhood Education must complete the following

requirements: A minimum of 24 semester hours is required for the Instructional Level II Certificate and 30 hours minimum for the Master's Degree Program. All courses scheduled should have the approval of the student's advisor.

In the event that a committee finds the student to be proficient in a required course or courses in the Professional Studies unit, the student will be permitted to elect another course or courses in the Professional Studies unit. Some students may have to schedule additional semester hours to reach the required level of competency.

Students pursuing a Master's degree may elect a two or a four-hour thesis. Those students electing the former choice, must also schedule EL 580 Seminar in Advanced Research. The student may also elect a non-thesis Master's degree.

## Procedures for Admission

An applicant must first be admitted to the Graduate School as a qualified student and must have an elementary education teaching certificate. He then obtains the Early Childhood Education Program application packet from the Coordinator of the Early Childhood Education Program, Third Floor, Davis Hall, completes the forms and returns them to the Coordinator's office for review. Applicants may be requested to report for an interview with the faculty responsible for teaching the early childhood education courses and will be notified of admission to the program. Upon admission to the program, the student will be assigned a faculty member who is responsible for teaching in the program.

### I. Professional Development Area (9 s.h.)

A. Humanistic Studies — Three semester hours are required from FE 511 through FE 514.

B. Behavioral Studies — Three semester hours are required. Selection of courses include EP 504, EP 573, EP 576, EP 578\*, EP 580; CE 529, CE 539, SE 531.

C. Research — All students are required to take GD 515 Elements of Research

### II. Specialization core (6 s.h.)

Students may take 6 s.h. in a specialization core. Recommended courses include EL 561\*, EL 553, LR 540.

### III. Subject Area\*\*\* (21 s.h.)

Students may elect 21 s.h. from the following courses: EL 550\*, EL 555\*, EL 560\*, EL 562\*, EL 548, EL 547, EL 580\*, ED 500, GR 550.

\*Required for Early Childhood Education Program

\*\*Required for non-thesis program — not required if student chooses thesis option.

\*\*\*If thesis option is selected, minimum is 15 s.h. including GR 550.

## THE DOCTORATE IN ELEMENTARY EDUCATION

The program leading to the Doctor of Education degree in Elementary Education is designed for those who wish to teach at the college or university level or who desire to work in a teaching, supervisory, or administrative capacity.

A candidate for this degree is expected to acquire a broad knowledge of various aspects of education, and to demonstrate through the completion of an acceptable dissertation the ability to conduct an independent investigation of a topic approved by the department.



The first step in a student's program is to seek admission to course work beyond the Master's degree. After the student has completed 9 hours and prior to 15 hours of advanced work at Indiana, he can apply for candidacy. To become a candidate a student must meet the requirements of the Graduate School and the department of Elementary Education. Applicants are reviewed on the basis of acceptable scores on the Graduate Record Examination, performance in course work, professional recommendations, and successfully passing a written and an oral examination administered by the department.

After admission to candidacy the student will be assigned to an advisory committee. This committee will assist the student in preparing a final plan of study. The comprehensive examination will be scheduled upon the recommendation of the advisory committee near the end of course requirements and prior to registering for GD 650 — dissertation credits. This examination will be both written and oral and will include a major and a second concentration field.

No specific number of credits entitles a student to the degree, but a minimum of 90 hours of credit properly distributed must be earned beyond the Bachelor's degree.

Statistics and computer science are required to complete the research area of study. However, foreign language may be substituted as an option.

A supervised internship and a period of residency will be required of all candidates for this degree. Ordinarily the internship will consist of working for a semester or a summer in an educational experience unlike one already experienced by the candidate.

A complete description of the Doctor of Education program in Elementary Education can be obtained from the Department

of Elementary Education, Davis Hall.

## COURSE DESCRIPTIONS

### EL 531 CURRICULUM PROBLEMS IN ELEMENTARY EDUCATION 3 s.h.

Students will develop and evaluate aims and objectives of elementary education, write a school philosophy, examine contemporary forms of curricular organization and determine place of each broad subject area in total school program.

### EL 532 SYSTEMATIC OBSERVATION OF CLASSROOM BEHAVIOR 3 s.h.

Students will learn how to code classroom verbal interaction through actual demonstration, video tapes, and audio recordings, with emphasis on various teaching strategies, monitoring verbal interaction, and supervisory sessions. Designed for elementary majors, provisions can be made to enroll students from other departments.

### EL 541 SPECIAL PROBLEMS IN ELEMENTARY SOCIAL STUDIES 3 s.h.

Specific problems with curriculum, teaching, and learning experiences and evaluation are stressed. Each student will research a special problem or area of interest.

### EL 542 MATHEMATICS IN THE ELEMENTARY SCHOOL 3 s.h.

Experiences with manipulative materials, games and puzzles, activity centers, and lab approach to mathematics. Inexpensive mathematics lab equipment will be constructed. Sources of literature and materials will be presented and used. Opportunities will be given to write activity and problem cards and to plan mathematics activity centers. Psychological foundations and mathematics structure will be used as referents for suggested activities and curriculum studies.

### EL 543 RESOURCE MATERIALS IN ELEMENTARY SCIENCE 3 s.h.

An introduction of underlying philosophy and use of materials of several of the current national curriculum programs in elementary science. Emphasis is placed on following programs: (1) Science: A Process Approach (SAPA), (2) Elementary Science Study (ESS), (3) Science Curriculum Improvement Study (SCIS), and (4) Conceptually Oriented Program in Elementary Science (COPES), including micro-teaching techniques and development and preparation of individualized self-instruction modules. Students are required to work with various program materials.

**EL 544 RECENT TRENDS IN ELEMENTARY  
LANGUAGE ARTS**

3 s.h.

Designed to help students to direct more effective communication through study of problems, recent trends and contributions of research in the broad fields of listening, oral and written communication.

**EL 545 EXPERIMENTAL STUDIES IN ART EDUCATION**

3 s.h.

Teachers will undertake art experiences in various media as they are adapted to provision of art experiences for the child. Emphasis will be placed on stages of growth, type of motivation, and ways of administering stimuli. Perceptual awareness and understanding and appreciation of visual art forms and their importance in the lives of people in our own and other cultures will be developed along with study of the exceptional child to recognize and encourage evidences of art potential as well as wholesome self-expression.

**EL 546 MODERN PROCEDURES & SKILLS  
IN ELEMENTARY MUSIC**

3 s.h.

New dimensions in thinking about elementary music for children. Emphasis is placed on the young student discovering interesting aspects of music — many sounds around him, rhythm through movement, use of percussive and simple method instruments, and music of countries. (Music Staff)

**EL 547 RESOURCE MATERIALS IN  
CHILDREN'S LITERATURE**

3 s.h.

Evaluation and selection of literature as a classroom resource for teaching and learning, including illustrations, folklore, poetry, modern and traditional fiction and non-fiction.

**EL 548 CREATIVITY AND THE ELEMENTARY  
SCHOOL CHILD**

3 s.h.

Ways to uncover creative abilities in children and techniques to direct these energies in the classroom by studying the role of the teacher as developer of these abilities. Students will be encouraged to develop their own creative abilities.

**EL 550 THE COMMUNITY AND THE ELEMENTARY SCHOOL**

3 s.h.

Development and maintenance of a purposeful program of communication between the elementary school and the community through study of selection, organization and functions of citizens advisory committees and cooperative use of various community services.

**EL 551 RECENT INNOVATIONS IN  
ELEMENTARY EDUCATION**

3 s.h.

Newer trends in classroom procedure, equipment, and materials as well as

problems involved in improvement of instruction. Whenever possible sessions will be held to demonstrate and use recently developed materials. Individual research and field trips into many of the newer programs in elementary education.

**EL 552 EVALUATING THE ELEMENTARY SCHOOL**

3 s.h.

Criteria for evaluating the elementary school, its curriculum, professional and non-professional staff, and the community as an educational agency, along with an opportunity to use the evaluation instrument in a selected school district in terms of established educational objectives.

**EL 553 SUPERVISION AND THE IMPROVEMENT OF  
INSTRUCTION IN THE ELEMENTARY SCHOOL**

3 s.h.

Purposes, patterns, processes, and products of the supervision of instruction with emphasis on the supervisor as the educational leader whose concern is improvement of instruction through the on-going growth and professional development of his staff.

**EL 554 ADMINISTRATION OF THE ELEMENTARY SCHOOL**

3 s.h.

Principles and techniques of elementary school administration through review of qualities, training and experience background, and human relationship qualities. Administrators will be viewed as leaders of teachers, children, non-professional staff and the community to develop and maintain the best educational plant possible.

**EL 555 RECENT TRENDS IN HUMAN DEVELOPMENT  
AND LEARNING**

3 s.h.

Concerned with recent literature and experimental works in field of learning. Studies will be limited to pre and elementary school child. Characteristics of learner, learning situation and motivation will be stressed.

**EL 556 SCHOOL ADMINISTRATION**

3 s.h.

Designed as basic course in school administration, intended to serve as an introduction to principles and practices of school administration for students who aspire to a supervisory or administrative position in public schools. Attention on human aspects of educational administration.

**EL 557 ELEMENTARY SCHOOL PERSONNEL  
ADMINISTRATION**

3 s.h.

Designed to provide background for potential principles and supervisors in matters pertaining to functions of various types of personnel employed in elementary school. Knowledge of organizational practices for proper and effective utilization of personnel and recognition of administrator's role in providing services to both staff and pupils.

**EL 558 SCHOOL LAW AND NEGOTIATIONS 3 s h**

An understanding of legal principles as they pertain to functions of personnel in public school system and to persons engaged in education. Study of statutory enactments, review of court actions through case studies, and analysis of collective negotiation laws and cases

**EL 560 EARLY CHILDHOOD STUDY TECHNIQUES AND ASSESSMENT TOOLS 3 s h**

Scientific method of studying children between ages of three through eight years, inclusive. Through studying one child in depth, student learns to observe, record, and analyze pertinent information in order to make multiple hypotheses, and to suggest ways to help children toward positive self development. Tests for assessment of the young child in areas of perceptions, concept development, self-inventories, general intellectual ability, readiness, and academic ability. Students must select and have one child available as subject for in-depth study

**EL 561 EARLY CHILDHOOD PHILOSOPHY & CURRICULUM MATERIALS 3 s h**

Introduces students to philosophy and historical background of pre-school through primary education (ages three through eight years, inclusive) and their influences on current programs and research, including current curriculum patterns of early childhood programs, materials available, and program planning for optimal development of children

**EL 562 EARLY CHILDHOOD FIELD STUDY EXPERIENCES 3 s h**

Direct observation and participation of teaching in nursery-kindergarten, federal, state, or local supported early childhood programs. Seminar sessions will study appropriate programs with immediate application in a classroom. Constructing and presenting appropriate learning devices and audio-visual aids to meet individual differences and needs of children in the classroom. Close supportive relationships with parents and community will be stressed.

**EL 577 SUPERVISED INTERNSHIP 3-6 s h.**

Students selected for this program receive continuing individualized guidance and supervision from an intern consultant during the semester. Registration only by permission of Graduate Committee

**EL 578 SEMINAR IN ELEMENTARY EDUCATION INTERNSHIP 3-6 s h**

Consultants who are specialists in their fields will be invited to discuss with interns problems related to their intern teaching or work experience. Registration only by permission of Graduate Commission.

**EL 580 SEMINAR IN ADVANCED RESEARCH 1-3 s h**

Enrollment will be by special application only and will be limited to advanced post-master's students. Most work will be on an individual or small seminar basis with staff and will be concerned with readings, research, and evaluation of proposed research

**EL 599 INDEPENDENT STUDY IN ELEMENTARY EDUCATION 1-3 s h**

Students will select one or more topics which are of critical importance in elementary education and will meet staff members for independent reading, study, analysis, and evaluation. Registration only by permission of Graduate Committee



## ENGLISH

### MASTER OF ARTS AND MASTER OF EDUCATION

A candidate for a Master's degree in English may choose a program leading to either the Master of Education or the Master of Arts. The choice will depend on the background of the candidate and his purpose in pursuing graduate study. Both programs share a common aim of increasing the candidate's knowledge of English language and literature and introducing him to the discipline of advanced study. In addition, the Master of Education degree aims at preparing teachers for public schools.

After a student is admitted to the graduate school the Director of Doctoral Studies will consult with him about the scheduling of courses. He should apply for candidacy before 12 credits have been earned.

#### I. Research Options

The writing of a thesis is optional for both the M.A. and the M.Ed. degree. The English department values writing and research; however, a candidate's decision concerning the thesis should be made on the basis of his purposes in obtaining the degree and the extent to which training in research will enhance both his professional and his personal goals. Under special circumstances and upon request from the Graduate School, a thesis may be written for additional credit after the student has already completed the Master's degree without a thesis.

#### II. Master of Arts in English

The M.A. degree either with or without a thesis requires a

minimum of 30 credits beyond the bachelor's degree. The candidate who chooses not to write a thesis will take all 30 credits in course work. Depending upon the nature of the thesis, the candidate who chooses to do research will take either 3 or 6 credit hours of the minimum 30 as thesis credits and the remainder in course work.

Required of all M.A. candidates are (1) EN 580 and (2) a proficiency in a single language in addition to English. The language requirement may be satisfied by acceptable undergraduate credit of 12 hours, by examination through the Foreign Languages Department at IUP, or by the Graduate School Foreign Language Test through the Educational Testing Service, Princeton.

The M.A. candidate may, if he chooses, apply a maximum of 6 hours credit in a related field (e.g. history, philosophy, psychology) toward satisfying his total course requirements. All hours remaining from the minimum 30 hours requirement will be satisfied by courses listed in the catalogue EN 500 through EN 599.

#### III. Master of Education

The candidate for the M.Ed. has the same thesis options as the candidate for the M.A. The M.Ed. candidate must satisfy the following requirements: (1) A Pennsylvania Teacher's Certificate in English or its equivalent from another state (2) Three credit hours in Humanistic Studies: any course from FE 511 through FE 514 (3) Three credit hours in Behavioral Studies: EP 504, EP 573, EP 576, EP 578, EP 580, CE 529, CE 539, or SE 531 (4) Three hours in Research: GR 515 (5) Six hours Specialization core: EN 503 and EN 593; and (6) Three hours in bibliographical studies: EN 580.

Depending upon his choice of thesis options, the candidate

will complete his 30 hour minimum requirement by taking from 6 to 12 hours of electives, chosen from courses EN 500 through EN 599.

There is no foreign language requirement for the M.Ed.

## **DOCTOR OF PHILOSOPHY PROGRAMS**

---

There are two distinct doctoral programs in English, one in English and American literature, and the other in English Education designed for English teachers in the community college. Both programs lead to a Doctor of Philosophy in English.

### **I. Doctor of Philosophy in English and American Literature**

The program leading to the Doctor of Philosophy in English and American literature is designed for those who wish to teach at the four-year college or university level. A candidate for this degree is expected to acquire a broad knowledge in limited areas of study and to show through the completion of an acceptable dissertation the ability to conduct an independent investigation of a topic approved by the department. To become a candidate the applicant must meet all the Graduate School requirements for candidacy, as well as the special requirements of the English department. Admission to course work beyond the Master's degree does not constitute admission to candidacy for the Ph.D. program. No specific number of course credits entitles a student to the degree, but a minimum of 60 semester hours of credit, exclusive of research credits, must be earned beyond the Bachelor's degree. Applications for candidacy will be reviewed by a departmental committee after eight hours of graduate credit have been earned beyond the Master's degree and before 16 hours have been completed. In determining whether or not an applicant should be accepted as a candidate for the degree of Doctor of Philosophy, the committee will

consider his scores on the Graduate Record Examination, his performance in course work, and, whenever applicable, his performance as a teaching-intern.

On application for candidacy, the candidate will be assigned to a dissertation committee who will help the candidate prepare a plan of study for a comprehensive examination, both written and oral, which will be taken on the recommendation of the dissertation committee near the end of course requirements and before registering for GD 650, dissertation credits.

The foreign language requirements for Ph.D. candidates in English must be completed before the comprehensive examination. For those candidates who do not satisfy this requirement by course work, the Education Testing Service administers examinations in French, German, Russian and Spanish. All other language examinations (and in special cases those in French, German, Russian, and Spanish) are administered by the Foreign Languages Departments of the University. The candidate's dissertation committee will make the final decision about what languages to accept and how much proficiency to require.

On approval of the dissertation committee, a candidate may take as many as 15 graduate hours of course work in a minor field in support of his major research interest.

Candidates must demonstrate the capacity to teach effectively, either in the departmental teacher-internship program, or through other acceptable teaching experience. English is required of all candidates.

A complete description of the Ph.D. program in English and American literature can be obtained from the English Department or from the Graduate School.

### **II. Doctor of Philosophy in English Education**

The program which leads to the Doctor of Philosophy in

English Education is designed for teaching English in the community college. The pre-service candidate for this degree is expected to acquire a thorough understanding of the community college as an institution and to demonstrate, largely through his semester's internship at a community college, his ability to teach effectively.

The in-service candidate for this degree may have the internship waived after a description and evaluation of his teaching experiences have been accepted.

Upon admission to the program, the candidate will be assigned to a Program/Evaluation Committee which will, in consultation with the candidate, work out a program of study. The Program/Evaluation Committee will review also the candidate's application for candidacy, which must be submitted after eight hours of graduate credit have been earned and before 16 hours have been completed. Another function of the Program/Evaluation Committee will be to prepare a comprehensive examination, written and oral, for each candidate.

Although there are some general course and research requirements for this degree, they may be waived by the student's Program/Evaluation Committee if they believe he has already acquired the information or specific competencies which these courses are designed to communicate or develop. These general course requirements are as follows: EN 589; EN 592; EN 503; EN 591; nine hours of elective credits in psychology, sociology, learning resources, etc.; a dissertation related to English education; a semester's internship at a community college.

A complete description of this degree program can be obtained from the English Department or Graduate Office.

## COURSE DESCRIPTIONS

EN 500	HISTORY OF THE ENGLISH LANGUAGE	3 s.h.
	Development of phonology, syntax and lexicon as well as rhetorical theories, from Old English through Modern English.	
EN 501	AMERICAN ENGLISH GRAMMAR	3 s.h.
	Phonology, morphology and syntax of present-day English, various approaches to analysis of English Grammar, and detailed consideration of problems of dialect and appropriateness.	
EN 502	THE PSYCHOLOGY OF LANGUAGE	3 s.h.
	An introduction to psycholinguistics for the English specialist, treating language as a code, acquisition of language, and patterns of normal and aberrant human language behavior.	
EN 503	LINGUISTICS AND THE ENGLISH TEACHER	3 s.h.
	Effect of modern linguistic theory on teaching of English, with special emphasis on reading, composition, stylistic analysis, and dialect interference.	
EN 504	SEMINAR IN LINGUISTICS	3 s.h.
	Concentrates on a specific aspect of linguistics (e.g. sociolinguistics) to provide stimulus for independent study.	
EN 510	SPECIAL TOPICS IN LANGUAGE AND LITERATURE	3 s.h.
	Allows students to pursue subjects such as textual criticism, prosody, and computers and literature not covered in detail in existing courses.	
EN 511	MAJOR WRITERS	3 s.h.
	Concentrates on one or two major writers of American or British literature, such as Twain, James, Wordsworth, Keats, etc.	
EN 512	THE AMERICAN RENAISSANCE	3 s.h.
	Works of major writers in mid-nineteenth century America.	
EN 513	NATURALISM AND REALISM IN AMERICAN FICTION	3 s.h.
EN 514	MODERN AMERICAN FICTION	3 s.h.
	Special studies in such figures as Dreiser, Anderson, Fitzgerald, Lewis, Dos Passos, and Wolfe.	

EN 515	TWENTIETH CENTURY AMERICAN DRAMA	3 s.h.
EN 516	SEMINAR IN AMERICAN LITERATURE TO 1870 Major writers in Puritan period, early republic, and other phases up to and including the Civil War	3 s.h.
EN 517	SEMINAR IN MODERN AMERICAN LITERATURE (from 1870) Study of particular author or group of authors; literary genre, literary movement; restricted period of time, etc.	3 s.h.
EN 561	CHAUCE Major works of Geoffrey Chaucer are studied as literature with emphasis upon pronunciation, versification, language, and textual problems.	3 s.h.
EN 566	SHAKESPEARE In addition to the plays and the scholarship on them, study of the historical and theatrical influences that affected Shakespeare.	3 s.h.
EN 570	MILTON Major prose and poetry of John Milton and the religious and political controversies reflected in Milton's work.	3 s.h.
EN 571	SEVENTEENTH CENTURY PROSE AND POETRY Major writers from the death of Elizabeth to 1660, excluding Shakespeare and Milton.	3 s.h.
EN 572	EIGHTEENTH CENTURY PROSE AND POETRY Major figures such as Dryden, Pope, Swift, Johnson, Defoe, Fielding, Sterne, Smollett, Burke, and Godwin.	3 s.h.
EN 573	ROMANTIC PROSE AND POETRY Works of the major poets and essayists from 1798 to 1832.	3 s.h.
EN 574	VICTORIAN PROSE AND POETRY Examines major social, political, economic, and religious issues in the works of the leading poets and prose writers from 1832 to 1890.	3 s.h.
EN 575	SEMINAR IN BRITISH LITERATURE TO 1500 Intensive study of some major works of Old or Middle English.	3 s.h.
EN 576	SEMINAR IN BRITISH LITERATURE — RENAISSANCE (1500 to 1660) Investigation of an area of English Renaissance that is not currently treated in	3 s.h.

course work.

EN 577	SEMINAR IN SHAKESPEARE Emphasis on individual study and research in primary and secondary sources	3 s.h.
EN 578	SEMINAR IN THE BRITISH NOVEL Focuses on novels of a given century; a thematic focus that ignores time divisions is sometimes used.	3 s.h.
EN 579	SEMINAR IN BRITISH DRAMA Ranges from medieval to modern drama; a thematic focus may sometimes be used.	3 s.h.
EN 580	BIBLIOGRAPHICAL METHODS IN ENGLISH Practical training in special methods and materials of research in English. Required of all majors in English except those taking the Ph.D. in English Education. Should be taken early in the program.	3 s.h.
EN 581	LITERARY BRITAIN A three- or six-week's tour of major sites important to English literature. Always includes London, Stratford, and Cambridge.	3 or 6 s.h.
EN 582	CLASSICAL LITERATURE Ranges from drama to lyrics and epic poetry in translation.	3 s.h.
EN 583	MODERN EUROPEAN FICTION Major fiction writers of the twentieth century exclusive of British and American.	3 s.h.
EN 584	MODERN POETRY Study of Modern British or American or European poetry, or any combination of them.	3 s.h.
EN 585	CRITICISM Major statements of critical theory from Aristotle onward. Aims are both historical and aesthetic.	3 s.h.
EN 586	BLACK LITERATURE IN AMERICA Chronological study of Black American writing for students who have had little introduction to Black literature. Emphasis on twentieth century	3 s.h.
EN 587	LITERATURE AND THE FILM Explores relationship between film and literature and the influences that each has had on the other.	3 s.h.

**EN 588 WORKSHOP IN PLAY PRODUCTION** (Summers only) 6 s.h.  
 Various styles of production and of principles of directing in preparation of plays for a high school audience. The summer theater is used as a lab for observation and participation. One day of lecture and library work, four days of lab.

**EN 589 ORIENTATION AND FIELD EXPERIENCE IN THE COMMUNITY COLLEGE** 3 s.h.  
 Examines the community college from historical and philosophical perspectives. Includes observations of classes and interviews with staff at community colleges. Specifically for students preparing for careers in the community college. To be taken early in the program.

**EN 591 MULTI-MEDIA AND THE TEACHING OF ENGLISH** 3 s.h.  
 Instructs students in methods of using media in teaching of language, composition, and literature, as well as the design and production of media materials.

**EN 592 SEMINAR IN TEACHING BASIC COMMUNICATION SKILLS** 3-6 s.h.  
 Instructs students in teaching of reading or of writing to adults. Reading/writing taught in alternate semesters.

**EN 593 SEMINAR IN TEACHING ENGLISH IN THE SECONDARY SCHOOL** 3 s.h.  
 Explores recent developments in teaching of language, composition, and literature.

**EN 598 INTERNSHIP** 3-12 s.h.  
 Practical experience in the student's area of interest, working under professional supervision on the job. Special permission only, dependent upon needs of student's program as well as personal and academic qualifications.

**EN 599 INDEPENDENT STUDY** 1-3 s.h.  
 Study in depth of topics not available through regular course work. Student works with supervising professor on carefully planned, student-initiated project. Prior approval necessary.

**NOTE:** Special Topics in Language and Literature, and Major Writers, as well as all seminars, may be scheduled more than once, because subject matter will change with each offering of the course. More complete course descriptions available from the department.

## FOREIGN LANGUAGES

### GERMAN

The programs leading to the M.A. and M.Ed. degrees in German have a number of goals in common and overlap in several areas. Both programs seek to improve the candidate's proficiency in German and to increase his knowledge of German culture and civilization. While sharing common aims, each program is flexible enough to be tailored to the individual candidate's purposes and desires for pursuing graduate study.

A minimum of 30 semester hours of graduate work is required, including two semester hours of Elements of Research (GD 515) for the M.Ed. The thesis is optional (0-6 credits). The remainder of the courses is to be taken in areas directly related to the student's main field of study. All candidates for advanced degrees in German will also demonstrate their achievement and proficiency by successfully passing comprehensive oral and written examinations on all graduate work in German completed at IUP.

Candidates for the Master of Arts degree must earn a minimum of 18 semester hours of credit in German courses (GM 510 through GM 553) and provide evidence of proficiency in a second foreign language. Candidates for the Master of Education degree must earn a minimum of 15 semester hours in German courses and successfully complete one course in the area of Foundations of Education.

**Duisburg program:** IUP students can take up to 10 credits at the University of Duisburg in the Federal Republic of Germany for a modest \$75/semester.



## **COURSE DESCRIPTIONS**

---

**GM 510 HISTORY OF THE GERMAN LANGUAGE** 3 credits  
History and development of German language, with special emphasis on relationships with English. Analysis of annals in Gothic, Old High German, and Middle High German using methods of historical and contemporary linguistics.

**GM 511 ADVANCED COMPOSITION & STYLISTICS** 3 credits  
Development of abilities in German composition and stylistics which will lead to greater facility and accuracy in writing German.

**GM 512 ADVANCED ORAL PRACTICE** 3 credits  
Designed to achieve fluency and accuracy in spoken German by using various media to provide framework for guided discussions of current topics.

**GM 513 GERMAN PHONETICS** 3 credits  
Analysis of physiological and linguistic factors of spoken German. Practice on critical areas of German pronunciation and intonation, with special emphasis on potential interferences between German and English.

**GM 530 SEMINAR ON GERMAN CULTURE** 3 credits  
In-depth study of German culture from either an historical, fine arts perspective or from an anthropological, sociological point of view. Independent research with oral and/or written reports required.

**GM 540 SEMINAR ON GERMAN LITERATURE** 3 credits  
In-depth study of particular author, or genre requiring independent research. Seminar topics to vary on a rotating basis, depending on staff and student interest.

**GM 553 ADVANCED METHODOLOGY** 3 credits  
Demonstrations and discussions of current teaching strategies to provide teachers of German with greater expertise in dealing with problem in motivation, articulation, and other pedagogical concerns. Topics to vary from time to time, depending on background and experience of participants involved.

## **SPANISH**

---

The Spanish Division of the Department of Foreign Languages offers programs of study leading to either the Master of Arts or the Master of Education degree in Spanish Language and Literature. The M.A. degree is recommended to those who plan to pursue studies towards the Ph.D. degree. The M.Ed. degree in Spanish is designed especially for those who plan a career as secondary school teachers or those already employed as teachers in a school system. Geared to both full and part-time students, since its inception in 1966, the program has served more than 100 graduate students.

## **REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN SPANISH LANGUAGE AND LITERATURE**

---

Candidates for the M.A. degree in Spanish must successfully complete a minimum of 30 semester hours of which at least 24 s.h. are to represent the area of concentration (Spanish) as well as a minimum of four different literary epochs chosen from courses in Peninsular and/or Spanish American literature. Required courses for the M.A. degree are: SP 500 or SP 501 and SP 506. Thesis is optional; if the candidate chooses the "No Thesis" option, he/she must complete 33 s.h. with a minimum of 27 s.h. in the area of concentration. For admission to degree candidacy the student must demonstrate a reading knowledge of a second foreign language acceptable to the department.

## **REQUIREMENTS FOR THE MASTER OF EDUCATION DEGREE IN SPANISH LANGUAGE AND LITERATURE**

---

Candidates for the M.Ed. degree in Spanish are required to successfully complete 30 semester hours with distribution as follows: A minimum of 15 s.h. in Spanish area studies which must represent courses chosen from at least three (3) different literary epochs in Peninsular and/or Spanish American Literatures. One (1) course in Foundations of Education (3 s.h.) to be selected from among: FE 511-514. One course (3 s.h.) to be chosen among the following Behavioral Studies: EP 504, EP 573, EP 576, EP 578, EP 580, CE 529, CE 539 or CE 531. GR 515 Elements of Research is required of all students in the M.Ed. Program. Two (2) courses or 6 s.h. from among the following: FE 515, LR 500, SP 505. Required courses in Spanish are: SP 500 or SP 501 and SP 506. If the student chooses the "No Thesis" option, he/she must then complete 18 s.h. in Spanish or a total of 33 s.h. For admission to degree candidacy the student must demonstrate a satisfactory reading knowledge of a second foreign language acceptable to the department.

## **CURRICULUM FOR THE M.A. AND M.ED. DEGREES IN SPANISH LANGUAGE AND LITERATURE**

---

I. Spanish Language and Literature (Area of Concentration)  
Courses SP 500 through SP 599 provide subject matter content in the area of specialization for both the Master of Arts and the Master of Education degrees. M.A. candidates are to complete 24 to 30 s.h. and M.Ed. candidates a mini-

mum of 15 to 18 s.h. chosen from these courses some of which represent required courses. FL 525 Valladolid Program for which 6 graduate s.h. credit will be allotted is optional provided that the candidate has not elected the Valladolid program as an undergraduate.

### **II. Related Studies**

A limited number of s.h. graduate credit may be elected from related areas of study with departmental approval.

## **COURSE DESCRIPTIONS**

---

### **FL 521 LANGUAGE AND SOCIETY 3 s.h.**

Salient facts of language and its fundamental role in development and continuity of society and culture, including language families and their characteristics, factors of linguistic change and development, reciprocal influences of culture and language, linguistic borrowing, psycholinguistics, and systems of writing. (Open to majors and non-majors.)

### **FL 525 FOREIGN STUDY — VALLADOLID (Optional) 6 s.h.**

Intensive study of Spanish language and culture at the University of Valladolid, Spain, from approximately February 1 to July 1. For detailed description consult the IUP publication "The Pennsylvania — Valladolid Study in Spain Program."

### **SP 480 FOREIGN STUDY — JALAPA (Optional)**

Intensive study of Spanish language and Mexican culture at the University of Veracruz in Jalapa, Mexico, from approximately July 7 to August 20. Credits subject to approval of the Director of the Program.

## **Hispanic Graduate Studies**

Series 500-506: Philology, Stylistics, Grammar and Methodology

### **SP 500 HISTORY OF THE SPANISH LANGUAGE 3 s.h.**

Traces phonological, morphological, lexical and syntactical evolution of Castilian dialect from its origins in Vulgar Latin through its development, perfection and ultimate recognition as the official language of Spain and Spanish America. Places Castilian linguistically with relation to other Romance Languages and considers features peculiar to Spanish of Latin America.

**SP 501 ADVANCED GRAMMAR, COMPOSITION  
AND CONVERSATION**

3 s.h.

Advanced grammar, composition and oral fluency intended to substantially improve understanding of Spanish grammar and syntax, increase vocabulary and command of language, and to provide opportunity for acquisition of poise and ease of self-expression.

**SP 505 METHODOLOGY OF FOREIGN  
LANGUAGE TEACHING**

3 s.h.

Improvement of teaching skills and an increased understanding and awareness of implications of current research to foreign language teaching and learning theory as well as development of strategies for testing and evaluation of student learning and exploration of curricular innovations.

**SP 506 METHODS OF RESEARCH, CRITICISM,  
AND STYLISTICS**

3 s.h.

Acquaints students with tools of research in the field: MLA style sheet, histories of literature, historical grammars, dictionaries, literary criticisms, recognized collections of literary texts, critical editions and monograph studies as well as various scholarly journals devoted to romance philology and literatures. Introduction to history of Spanish literary criticism and to stylistics as a tool of literary analysis applied to representative works of various epoch styles.

## Spanish Peninsular Literature

Series 510-550

**SP 510 MEDIEVAL SPANISH LITERATURE**

3 s.h.

Reading and discussion of various medieval genres: epic poetry (Juglaria and clerecia); lyric and didactic poetry; prose (Alfonso X and selections from the *Cronica general*, the *Partidas*, the *Cantigas*, etc.; Juan Manuel and the apologue); *Danza general de la Muerte*, the debate and the medieval drama.

**SP 515 PHOTO-RENAISSANCE LETTERS AND  
MASTERPIECES**

3 s.h.

Critical appreciation of transitional literary forms of XV century Spain: poetry and the *Cancioneros* and the *Romancero*; prose (history, biography and satiric-didactic literature, apologues). Special emphasis on *Libro de buen amor* and *La Celestina*.

**SP 520 RENAISSANCE AND HUMANISM**

3 s.h.

Consideration of cultural contributions of Spanish Christian Humanism

together with a careful study of Renaissance lyric poetry (Italianate and traditional veins); the epic; the novel (in its various forms); Pre-Lopesque theater; the dialogue; ascetic and mystical prose and poetry; history.

**SP 525 THE SPANISH BAROQUE**

3 s.h.

An insight into typical Baroque themes, motifs and stylistic devices through analysis and interpretation of important works of XVII century authors. Poetry (lyric and epic); prose (novel and novella); literary criticism and polemics; drama.

**SP 526 GOLDEN AGE DRAMA**

3 s.h.

Readings and interpretations of major dramatists (Lope and Calderon) and examination of XVII century drama, its peculiar national character, and its relationship to contemporary society and culture.

**SP 530 NEOCLASSICISM AND ROMANTICISM**

3 s.h.

Compares and contrasts cultural and ideological expression of XVIII century Spain — both French cultural influence and popular reaction to the trend — as manifested in the prose (polemic, erudite, narrative and philosophic), poetry and theater of the period to artist and literary aesthetics of the first half of XIX century Spain as reflected in poetry, novel, drama and literary preceptive of her imported Romanticism together with an appreciation of the late romantic Becquer.

**SP 535 COSTUMBRISM, REALISM AND NATURALISM**

3 s.h.

Studies and analysis of "Articulos de costumbres" and especially several trends in the novel of latter half of the XIX century in Spain. (Fernan Caballero, Alarcon, Valera, Pereda, Palacio Valdes, Pardo Bazan, Blasco Ibanez, Clarin and Perez Galdos).

**SP 540 GENERATION OF 1898**

3 s.h.

A critical excursion into minds of the late XIX and early XX century novelists and thinkers and their works. Emphasis on novels and essays of Unamuno, Ganivet, Azorin, Baroja, Valle-Inclan, Ortega y Gasset and Perez de Ayala.

**SP 545 MODERNISM, CONTEMPORARY AND  
POST-CONTEMPORARY POETRY**

3 s.h.

Study and analysis of lyric poetry in Spain from Modernism and its evolution to present.

**SP 550 SPANISH LITERATURE OF THE XX CENTURY**

3 s.h.

Trends in Spanish Novel after Civil War: A) 1940-1961: *Tremendismo* and testimonial novel; Social Realism and Objectivism. B) 1962 to present: reaction against Social Realism and Objectivism; new tendencies. C) short story. D) study and interpretation of Spanish theater from generation of 1898 to present

## Spanish American Literature and Culture

Series 555-595

### SP 555 PRE-COLUMBIAN LITERATURE AND SPANISH AMERICAN CIVILIZATION 3 s.h.

Literature, art myth and thought of Indian civilizations of Latin America with emphasis on Aztecs, Mayas and Incas as well as history and culture of Spanish America, Spanish American character, traditions and ideology from its origins to the present.

### SP 560 COLONIAL PERIOD 3 s.h.

Representative chroniclers, poets and dramatists from the letters of Columbus to end of the XVI century together with a study of various literary genres during the XVII and XVIII centuries in Spanish America with special emphasis on Baroque and Neoclassical trends.

### SP 565 ROMANTICISM AND GAUCHESQUE LITERATURE 3 s.h.

A detailed study of the Romantic period, its European influences and unique characteristics of Romanticism in Spanish America with representative poets, novelists and essayists read against the XIX century historical background. Development of Gauchesque genre in Argentina and its characteristics, interrelated with the geographical, historical and social background with emphasis on Gauchesque poetry

### SP 570 MODERNISM 3 s.h.

Modernistic movement of Spanish American literature history, and its relation to certain European artistic trends and movements. Aesthetic principles of modernism together with its renovation in themes, vocabulary, syntax and versification will be seen as reflected in the criticism and works of the movement's outstanding authors.

### SP 575 POST-MODERNISM & AVANTE-GARDE POETRY 3 s.h.

A study of the reaction against modernism as characterized by new tendencies of post modernistic poetry, followed by an analysis of historical and socio-cultural situation of "avante-garde" movements. Discussion of characteristics of works of major Spanish American "avant-garde" poets.

### SP 580 REGIONALISTIC NOVEL 3 s.h.

A study of the "maestros" of Spanish American regionalism of the early XX century, including novelists Gallegos, Rivera, Azuela, Güiraldes, Icaza, Algeria, etc.

### SP 585 XX CENTURY SPANISH AMERICAN LITERATURE 3 s.h.

Literary expressions in Spanish America from end of the XIX century to present.

### SP 590 CONTEMPORARY NOVEL AND SHORT STORY 3 s.h.

Major contemporary novelists and short-story writers (Borges, Onetti, Cortázar, Carpentier, Rulfo, García Márquez, etc.), with an examination of their major themes, techniques and stylistic features.

### SP 595 THE SPANISH AMERICAN ESSAY 3 s.h.

Development of literary and ideological essay from the last two decades of the XIX century to present with stress on contemporary period. Essays will be read both as a literary genre and as a vehicle of ideas against the historical background.

### SP 581 SPECIAL TOPICS 3 s.h.

Study of an author, genre, epoch or literary movement.

### SP 599 INDEPENDENT STUDY 1-3 s.h.

## FOUNDATIONS OF EDUCATION

The Foundations of Education Department seeks to expose its students to a systematic inquiry into educational theories and practices through a philosophical, sociological, historical, and comparative analysis. Foundations study generates criteria for judgment and helps to formulate a Gestalt of various subjects. It also helps to develop an integral and cross-sectional view of education, while augmenting the construction, clarification, and evaluation of educational goals necessary for development of effective methods of instruction. Furthermore, it broadens perspectives and deepens analyses of policies and programs which help educational personnel find meaning and value in all educational activities.

## COURSE DESCRIPTIONS

### FE 511 HISTORICAL FOUNDATIONS OF EDUCATION 2 s.h.

Study of historical development of American education. European influences on philosophies and practices of American schools will serve as a background.

Emphasis on development of education in America as influenced by various individuals and schools of thought. Historical trends will be related to current problems and practices in education.

**FE 512 PHILOSOPHICAL FOUNDATIONS OF EDUCATION 2 s.h.**

Analysis and evaluation of basic philosophies and their impacts upon education. Nature, value, means and ends of education and some other fundamental phases of schooling will be thoroughly examined. Stress on essentials enhancing an individual working philosophy of education; basic ideas heightening a sound philosophy for American schools.

**FE 513 SOCIAL FOUNDATIONS OF EDUCATION 2 s.h.**

Social and cultural forces which influence education. Particular stress on current problems as they relate to entire educational system and to curricular problems and practices in today's schools.

**FE 514 COMPARATIVE FOUNDATIONS OF EDUCATION 2 s.h.**

Educational theories and practices in different nations will be studied. Social and cultural forces which influence education. Particular stress on current problems as they relate to entire educational system and to curricular problems and practices in today's schools.

**FE 515 DECISION-MAKING IN CURRICULUM DEVELOPMENT 3 s.h.**

Analysis of philosophical, sociological, and psychological basis for creation of curricular patterns, K-14. Includes utilization of technological devices, critical examination of basic concepts underlying determination of objectives, selection and organization of subject matter and of learning experiences in general. Current curriculum research will be analyzed, as will existing instructional materials and programs.

**FE 516 PROFESSIONAL NEGOTIATIONS IN EDUCATION 3 s.h.**

Study dimension of professional negotiations process in educational sector. Instructional tools will be case studies, lecture-discussion and reading assignments. Guidelines of public policy affecting public employer-employee relations will also be evaluated and analyzed.

**FE 595 INTERNATIONAL EDUCATION STUDIES PROGRAM 3 s.h.**

A travel-seminar conducted in a foreign country and designed to afford educators and students of education the opportunity to investigate teaching-learning process in cultural settings other than their own. Particular attention to such current educational issues as theories of curriculum development, methodology, teacher education, and changing value systems.

**FE 599 INDEPENDENT STUDY 1-6 s.h.**

## **GEOGRAPHY AND REGIONAL PLANNING**

The pursuit of a Master's Degree with a major in Geography presupposes an undergraduate geography major. The department will accept applicants with limited background in geography provided deficiencies be remedied through extra course work.

The Department invites students with a limited geography background to extend their general education through enrollment in geography courses. Students in Elementary, Social Science, Science, or Business may find Geography courses closely related to their fields.

The degree sought will depend upon the personal objectives of the individual. The Master of Education (M.Ed.) degree is professional and oriented to teaching.

The Master of Arts and Master of Science degrees are designed with knowledge of subject matter as the objective. Although these degrees are complete programs, they also are designed as preparation for further graduate study. The Master of Arts and Master of Science degree differ both in their programs and in the background required.

The Master of Arts degree is for the student interested in the human, economic, and regional development of earth space.

The Master of Science degree is for the student with a mathematics and science background who is interested in the study of the physical factors in environment.

The student will, in consultation with the Department, determine whether or not a thesis will be a required activity of his or her degree program.

When a thesis is to be considered as a part of the degree program, a minimum of 30 graduate credits will be required.

When a thesis is not to be considered as part of the degree

program, the student will complete a minimum of 36 acceptable graduate credits.

### **Requirements for M.A. and M.S. Degrees (30-36 cr.)**

- I. Core: (12 cr.) Consisting of the following courses: GE 579 or 590, GE 591, 592, and 594.
- II. Concentration: Includes 12 to 18 cr. in Geography, Planning and related disciplines. The number of credits that may be taken in related disciplines will be determined on an individual basis by the Departmental Graduate Studies Committee.
- III. Research and Independent Study: (2 to 6 cr.) Consists of the following options: Thesis (2-6 cr.); one Independent Study Seminar plus Internship (6 cr.); two Independent Study Seminars (6 cr.)

### **Requirements for M.Ed. Degree**

- I. Professional Development Area: (9 cr.)
  - A. Humanistic Studies (3 cr. from the following list): FE 511, FE 512, FE 513, FE 514.
  - B. Behavioral Studies (3 cr. from the following list): EP 504, EP 573, EP 576, EP 578, EP 580, CE 529, CE 539, SE 531.
  - C. Research (3 cr. required of all students): GR 515
- II. Specialization Core: (6 cr. from the following list): FE 515, LR 500, GE 510, GE 551.
- III. Subject Area and/or Thesis (15 cr. from the following list): GE 511, 512, 513, 514, 523, 524, 525 to 540 inclusive, 541, 542, 552, 553, 579, 588, 590, 591, 594, 595, and 599.

## **COURSE DESCRIPTIONS**

- |                                                                                                                                                                                              |                                                          |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------|
| GE 510                                                                                                                                                                                       | COMMUNITY COLLEGE TEACHING                               | 2 s.h.   |
| Considers goals and objectives of general education, discipline, various course organizations, materials, methods and teaching techniques. Supervised classroom teaching is required.        |                                                          |          |
| GE 512                                                                                                                                                                                       | SETTLEMENT GEOGRAPHY                                     | 2-3 s.h. |
| Study of settlement patterns and processes: origins, diffusion, classification, pioneer, settlement planning, and agricultural colonization.                                                 |                                                          |          |
| GE 513                                                                                                                                                                                       | POPULATION GEOGRAPHY                                     | 2-3 s.h. |
| Study of variations in numbers, characteristics and dynamics of human population, models and theoretical constructs relevant to demographic structures and processes in a spatial context.   |                                                          |          |
| GE 514                                                                                                                                                                                       | QUANTITATIVE TECHNIQUES IN GEOGRAPHY & REGIONAL PLANNING | 2-3 s.h. |
| Descriptive and inferential statistical techniques applied to spatial distribution and spatial association of physical and cultural phenomena and testing of spatial theoretical constructs. |                                                          |          |
| GE 520                                                                                                                                                                                       | PHYSICAL GEOGRAPHY                                       | 2-3 s.h. |
| Study of development, classification, distribution and interpretation of: landforms, climates, soils, natural vegetation, underground resources, and water resources.                        |                                                          |          |
| GE 521                                                                                                                                                                                       | ADVANCED HUMAN GEOGRAPHY (non-majors)                    | 2-3 s.h. |
| A refresher course in geography for the non-geography majors. Both systematic and regional studies will be made to acquaint the student with modern geography methods and techniques.        |                                                          |          |
| GE 522                                                                                                                                                                                       | AEROSPACE SCIENCE (non-majors)                           | 2-3 s.h. |
| Workshop conducted with visiting aerospace authorities on: space, environment; history of flight; flight problems; satellites; space probes; space exploration; etc. Airflights available.   |                                                          |          |
| GE 523                                                                                                                                                                                       | URBAN GEOGRAPHY                                          | 2-3 s.h. |
| An analysis of city types, patterns and functions as influenced by geographic conditions and other factors. City planning techniques and field study are utilized.                           |                                                          |          |
| GE 524                                                                                                                                                                                       | CULTURAL GEOGRAPHY                                       | 2 s.h.   |
| A study of literature and methods of cultural geography. Topics include                                                                                                                      |                                                          |          |

population, settlements, human ecology, culture areas, and related features.

**GE 525-540 GEOGRAPHY REGIONAL SEMINAR** ea 2-6 s.h.

Each region is examined in detail for soil, topography, climate, vegetation, population, and interrelationships evolved. Only two are allowed toward M.A. degree. The following are offered from time to time:

GE 525 AFRICA, SOUTH OF SAHARA

GE 526 INDIA, PAKISTAN, AND INDO-CHINESE PENINSULA

GE 527 MEXICO, MIDDLE AMERICA AND WEST INDIAN ISLANDS

GE 528 SOUTH AMERICA

GE 530 U.S.S.R.

GE 531 NORTHWESTERN EUROPE

GE 534 CHINA, KOREA, AND JAPAN

GE 535 AUSTRALIA AND PACIFIC ISLANDS

GE 540 GEOGRAPHY OF PENNSYLVANIA

**GE 541 AGRICULTURAL GEOGRAPHY** 2-3 s.h.

Specific problems will be studied in view of both the countries involved and world environment. Stress will be placed upon individual study and research as well as classroom lecture.

**GE 551 PROFESSIONAL PROBLEMS IN  
GEOGRAPHIC EDUCATION** 2-3 s.h.

Classroom problems and discussion centered about "New Viewpoints in Geography." Individual reports, group discussion and research will be included.

**GE 552 CONSERVATION: ENVIRONMENTAL ANALYSIS** 2-3 s.h.

Problems of exploitation and utilization of world resources, i.e.: agriculture, mineral, forest, fish, food distribution, population growth, regional planning, factory location and energy conservation measures.

**GE 553 POLITICAL GEOGRAPHY** 2-3 s.h.

Geographic factors and conditions are analyzed as they relate to character and function of states. Political institutions are evaluated in light of geographic conditions.

**GE 554 CONTEMPORARY ISSUES IN  
GEOGRAPHY/PLANNING** 2-3 s.h.

Topics may include: Geography of Disease, Urban Environment, Geography of Egyptian-Israeli conflict.

**GE 555 INTRODUCTION TO PLANNING** 2-3 s.h.

Designed to give a basic introduction to the present field of planning whether it be on a city, metropolitan, regional, county or other areal configuration. Examination is made of the following major segments: Intergovernmental Context and Legislative Basis for Operating; The "Comprehensive Plan" what it is and why one is needed; Plan implementation — Renewal, subdivision regulations, zoning, and programming community developments; The Planning Agency — operations, organization, administration and funding.

**GE 556 PLANNING: BASIC STUDIES AND ANALYSIS** 2-3 s.h.

Research, analytical design and plan-making techniques in urban and regional planning. Examines basic items necessary to prepare urban and regional comprehensive plans. Prerequisite: GE 555 or equivalent.

**GE 557 PLANNING: DEVELOPMENT, PRINCIPLES, THEORY** 2-3 s.h.

Examines process of city planning during ancient, medieval, renaissance periods, and a review of early planning in America, as well as present city planning.

**GE 558 PLANNING: DESIGN** 2-3 s.h.

Offers students opportunity to work with various concepts of city and subdivision design utilizing the effects of topography, natural resources, and other physical elements. Prerequisite: GE 555 or equivalent.

**GE 560 URBAN PLANNING SEMINAR** 2-3 s.h.

Will vary in content according to students enrolled and their interest. Prerequisite: GE 556 or equivalent.

**GE 561 URBAN PLAN IMPLEMENTATION** 2-3 s.h.

Considers zoning, improvement programs, housing codes, building codes, methodology and application of administrative procedures. Federal and Local Urban Renewal Programs, site selection, program administration. Prerequisite: GE 556 or equivalent.

**GE 573 CLIMATOLOGY** 2-3 s.h.

Dynamic and physical aspects of climatology. Topics covered: heat and water budget; principles of climatic classification; Koppen, Thornwaite; paleoclimates; regional climates of continents; microclimates.

**GE 579 CARTOGRAPHY** 2-3 s.h.

Develops ability to map and diagram place location, area distribution, and statistical data in thesis or professional papers. Special maps, charts, and diagrams will be considered as required by students.

**GE 588 PHYSIOGRAPHY (UNITED STATES) 2-3 s.h.**

Presents a detailed study of origin, classification, and structure of mountains, plains, coast lines, rivers, lakes and subsequent modification by glaciers, stream erosion, wind abrasion, tides and ocean waves.

**GE 590 MAP AND PHOTOGRAPHIC INTERPRETATION 2-3 s.h.**

Designed to develop skill in extracting information and to synthesize data from maps and aerial photographs into geographic relationships related to geology, economy, land use, transportation, or strategic use.

**GE 591 THOUGHT AND PHILOSOPHY IN GEOGRAPHY AND PLANNING 2-3 s.h.**

Seminar in history of the discipline, great ideas of geography, leading professionals, and unresolved issues.

**GE 592 ELEMENTS OF RESEARCH IN GEOGRAPHY AND PLANNING 2-3 s.h.**

Elements and techniques of scientific research, as applied to geography problems, are studied. A proposal thesis topic is developed.

**GE 594 FIELD TECHNIQUES IN GEOGRAPHY 2-3 s.h.**

Field techniques are discussed and evaluated. Field tools and techniques are used in the study of a specific area. Emphasis is upon skill and interpretation of areal patterns of geographic phenomena.

**GE 595 REGIONAL FIELD STUDIES 2-3 s.h.**

Field observation and analysis of geographical relationships which exist between various physical and cultural phenomena. The student must secure department permission prior to field work.

**GE 596 SUPERVISED INTERNSHIP EXPERIENCE 0-2 s.h.**

Supervised work experience at the graduate level. Open only to students who have completed eight credits of graduate work.

**GE 599 INDEPENDENT STUDY**

Independent Research and Study under faculty direction, by application only.

**GEOSCIENCE**

The geoscience department embraces several areas of study related to the earth, its structure, and its environment; specifically astronomy, geology, meteorology, and oceanography. The department participates in the Marine Science Consortium operated jointly with nine other Pennsylvania institutions at Wallops Island, Virginia. Graduate courses offered by the Consortium have the same acceptance as those taken on campus. Courses taken under descriptions in the Indiana University of Pennsylvania catalog, with tuition paid to Indiana, are treated as in-resident courses but those taken under other descriptions are subject to the same limitations of all transferred credits. The department offers an M.A. degree in Geoscience.

**CURRICULUM FOR MASTER OF ARTS DEGREE IN GEOSCIENCE****I. Qualifications of Entering Student (A or B)****A. Bachelors degree in Education.**

Minimum undergraduate requirements would include a total of 16 credit hours of science and mathematics. The mathematics shall include a calculus course.

**B. Bachelors degree with science or mathematics concentrate. Undergraduate education course deficiencies will have to be filled for those anticipating a teaching career.****C. Any undergraduate deficiencies must be completed.****II. Required background courses (21 hours): GS 502, 561, 562, 571, 572, 541 and 542.**

Each of the above disciplines may be satisfied by one of the



following:

1. 7-9 week summer institute approved by the advisor and restricted to one of the above disciplines.
2. One year undergraduate training in one of the subject areas.
3. One year graduate training in the subject area at another university.
4. 3-6 credit background courses in Geoscience Department.

### III. Requirements in addition to background courses.

- A. GD 515 (3 cr.)
- B. GD 540 (4 cr.) (Committee thesis required)
- C. Seminar (1 cr.) (Requirement only if the course is offered during the time the student is enrolled in graduate school)
- D. Electives  
A minimum of 9 credits are required from IV. Department consent required for any course work taken by M.A. Geoscience degree candidates.

### IV. Geoscience Department offerings:

- A. Oceanography
  1. Courses available at the Consortium, Marine Science 500, 3 cr.
- B. Astronomy
  1. Astronomy, one level above core
  2. GS 550
- C. Geology: GS 505, GS 507, GL 511, GL 519, GL 520, GL 521, GL 522, GL 524, GL 525, GL 526, GL 527, GL 530, GL 535.

D. GS 581, GS 599

### V. Summary

#### Background Courses

Oceanography	6 cr.
Meteorology	6 cr.
Astronomy	6 cr.
Geology	3 cr.

SUB TOTAL      0-21 cr.

#### Additional Required Courses

Seminar	1 cr.
Elements of Research	3 cr.
Thesis	4 cr.

SUB TOTAL      8 cr.

#### Elective Courses

SUB TOTAL      9-22 cr.

TOTAL      30 cr. minimum requirement

## COURSE DESCRIPTIONS

GS 502      PRINCIPLES OF GEOLOGY      3 s.h.  
Intensive study of geological principles and processes, including forces at work within the earth and upon its surface and the resultant changes through time of the lithosphere and biosphere.

GS 505      EARTH MATERIALS      3 s.h.  
Study of concentration of elements which make up the earth, formation of stable compounds called minerals from the available elements and aggregation of minerals to form rocks.

GS 507      LIFE OF THE GEOLOGIC PAST      3 s.h.  
Designed to acquaint students with basic morphologic features of invertebrate fossils and an understanding of their relative abundance and importance in the geologic past.

**GL 511 SEDIMENTARY PETROLOGY 3 s.h.**

Determination and interpretation of grain size parameters; an introduction to clays and clay mineralogy; hand lens and petrographic microscope study of marine phosphorites, carbonates, siliceous sediments, heavy minerals, and sandstones with emphasis on interpreting ancient depositional environments.

**GL 512 STRATIGRAPHY 3 s.h.**

Study of layered rocks with emphasis on the guiding principles of stratigraphy, the evaluation of unconformities, the principles and problems of correlation, and selected stratigraphy problems.

**GL 519 CRYSTALLOGRAPHY 3 s.h.**

Designed for the geologist, chemist, and physicist. Minerals are studied utilizing common field and X-ray notation. External and internal morphology is examined. Stereographic projection techniques are applied. Prerequisites: Fundamentals of Mathematics, plus Mineralogy or Physical Chemistry, or permission of instructor.

**GL 520 PENNSYLVANIA GEOLOGY 3 s.h.**

Diversity and abundance of geologic phenomenon within the state will be used to apply basic geologic concepts of time, rock types and structures and geomorphic processes. Extensive field trips will be an integral part.

**GL 521 MINERALOGY 3 s.h.**

Workshop in study and identification of minerals, theory of mineral formation and structure, and mineral relationships. Simple chemical and physical techniques will be used for mineral identification. Prerequisite: Physical Geology or General Chemistry.

**GL 522 PETROLOGY 3 s.h.**

Study of rock phyla and their chemical and spatial relationships in the earth. Special attention to the genesis, mineral composition, and classification of rock types. Ecology of igneous, sedimentary, and metamorphic rocks is studied in detail. Prerequisite: Mineralogy.

**GL 524 GLACIAL GEOLOGY 3 s.h.**

Study of phenomenon of glaciation, including study of glacial movement, glacial deposits, and an investigation of possible causes of glaciation. A working acquaintance with glacial land forms is provided by means of field trips to glaciated region of N.W. Pennsylvania.

**GL 525 EARTH DEFORMATION I 3 cr.**

Study of deformation structures including folds, joints, faults, foliation and lineation. Includes lab and field work with Brunton compass, geologic maps, cross sections, and report writing.

**GL 526 EARTH DEFORMATION II 3 cr.**

Continuation of Earth Deformation I. Includes: techniques of geologic field work such as measuring sections, use of aerial photographs, and a field project involving compilation of a geologic map, cross sections, and geologic report.

**GL 527 GEOMORPHOLOGY 3 s.h.**

Landforms and processes and principles that govern both their origin and their subsequent development. Prerequisite: Structural Geology.

**GL 530 PALEONTOLOGY 3 s.h.**

A morphological study of major invertebrate life forms of geologic past and their distribution in space and time. Prerequisite: Historical Geology or Zoology.

**GL 535 ECONOMIC MINERAL DEPOSITS 3 s.h.**

Study of earth's metallic and non-metallic mineral resources with regard to processes of formation, methods of extraction (mining and drilling methods), methods of treatment, uses, and economic and environmental factors.

**GS 541 THE SOLAR SYSTEM 3 s.h.**

Characteristics and behavior of planets and their satellites, asteroids, meteors, comets, and other phenomena of the solar system. One of the major topics will be to investigate and criticize several of the theories of its origin. It will require some treatment of celestial mechanics but will not require a background of calculus.

**GS 542 THE SIDEREAL UNIVERSE 3 s.h.**

Characteristics and classification of the stars, their assemblage in groups and galaxies and their evolution. Techniques of gathering data are examined to gain an understanding of the role of the telescope, spectroscope and photometer in astronomical research. Lab exercises and night observations are a part of the course. Credit will be given only to those for whom the course represents an area of study for which credit has not previously been recorded.

**GS 550 OPERATION OF THE PLANETARIUM 1-2 s.h.**

Designed to acquaint student with the operation and use of the Spitz Planetarium. A satisfactory instructional program or show for a public group will demonstrate accomplishment of course objectives. Prerequisites: One year astronomy or equivalent.

## HISTORY

---

The Master of Arts Degree in History is designed to give students both breadth and depth in that academic discipline. As a terminal degree it prepares teachers for the secondary schools and community colleges. Students seeking scholarships and fellowship opportunities for work elsewhere beyond the master's degree should consult the Director of Graduate Studies within the department, Dr. Irwin Marcus. All programs of study are to be approved by him, or the departmental chairperson.

It is imperative that graduate students schedule SS 510, Research Methodologies in the Social Sciences or GD 515, Elements of Research, early in their graduate program.

## HEALTH AND PHYSICAL EDUCATION

---

### HP 521 ADVANCED SEMINAR IN HEALTH AND SAFETY 2 s.h.

Provides students with current health and safety information and defines its relation to needs of the school child, home, community, and school. Application of health and safety instruction to modern principles of education, and materials to plan and implement an effective health and safety instructional program. Geared toward particular health and safety problems of students enrolled.

Credit may be used in general studies area of elementary curriculum and, subject to the approval of the department chairman or program advisor, as an elective in all other programs.

### HP 530 WORKSHOP IN COMMUNITY SCHOOL HEALTH EDUCATION 2 s.h.

School, community and public health as related to interests of Workshop participants. Areas studies include mental health, nutrition, dental health, physical education, health services, environmental health, changing health patterns and health statistics. Teaching methods, special projects, consultations, visitations, discussions and sources of information and materials will be considered.

Credit may be used in general studies area of elementary curriculum and, subject to the approval of department chairman or program advisor, as an elective in all other programs.

## CURRICULUM FOR MASTER OF ARTS DEGREE IN HISTORY

---

Students working toward the Master of Arts degree in History will complete a minimum of 30 semester hours of work in accordance with the following divisions.

Courses HI 501 through HI 593 will provide the subject matter concentration for the program. Candidates will choose 15-24 hours depending on the options elected for research and related studies. In research, students must meet a 6-9 hour requirement which includes methodology competency, a thesis, and seminar(s). Independent study may be scheduled (0-5 s.h.) with no more than 7 hours for thesis and independent study combined. Work in related field (0-6 s.h.) is available to interested students who receive the permission of the chairperson or the graduate advisor.

## COURSE DESCRIPTIONS

---

**HI 501 HISTORY OF GREECE** 3 s.h.  
Will analyze major political, social, and economic developments in ancient Greek civilization from Bronze Age to death of Alexander.

**HI 502 HISTORY OF ROME** 3 s.h.  
Will trace Roman history from early Republic down to fall of Empire. Roman political theory will be particularly emphasized

**HI 503 MEDIEVAL EUROPE I, 400-900** 3 s.h.  
History of early Medieval Europe, from decline of Rome to beginnings of High Middle Ages; emphasis on political, social, economic, religious, and intellectual developments

**HI 503 MEDIEVAL EUROPE II, 900-1350** 3 s.h.  
History of late Medieval Europe, from High Middle Ages to Renaissance period; emphasis on political, social, economic, religious, and intellectual developments.

**HI 505 RENAISSANCE AND REFORMATION** 3 s.h.  
History of Europe from ca. 1250; rise of commercial city, Kings, and pressures on Christian Church to 1600. Some consideration of technology and voyages.

**HI 506 EARLY MODERN EUROPE** 3 s.h.  
Greatness of France under Louis XIV; Sweden; Thirty Years' War. Emergence of modern society; French Revolution

**HI 507 HISTORY OF EUROPE, 1815-1914** 3 s.h.  
Study of Europe in nineteenth century, with emphasis on the emergence of major thought patterns, Romanticism, Nationalism, Socialism, and Positivism.

**HI 508 20TH CENTURY EUROPE** 3 s.h.  
Political, economic, and diplomatic trends in Europe since 1900, with major emphasis on causes and results of war, and search for security.

**HI 510 COMMUNITY COLLEGE TEACHING INTERNSHIP** 2-3 s.h.  
Designed especially to prepare community college instructors through an emphasis on objectives, materials, techniques and evaluation of general education programs in history. Summer only. Before programming, see advisor.

**HI 511 READINGS IN HISTORY** 3 s.h.  
Directed reading of significant historical materials, focused on a general topic.

**HI 512 READINGS IN HISTORY** 3 s.h.  
Directed reading of significant historical materials, focused on a general topic.

**HI 520 HISTORY OF ENGLAND TO 1688** 3 s.h.  
Survey of growth of English nation, with emphasis on political, social, and economic developments leading to 17th century conflict between Crown and Parliament.

**HI 521 HISTORY OF ENGLAND, 1688 — PRESENT** 3 s.h.  
Survey of growth of England as a democratic constitutional monarchy. Attention directed to industrial revolution, and to imperial expansion and England's role in 20th century world.

**HI 521 HISTORY SEMINAR** 2-3 s.h.  
Area research in the discipline, culminating in a formal paper.

**HI 522 FRENCH REVOLUTION AND NAPOELON** 3 s.h.  
Brief sketch of medieval France and development of monarchy; concentration on Old Regime, Revolution, and Empire, with emphasis on politics, diplomacy, and economics. Readings and brief papers.

**HI 523 MODERN FRANCE** 3 s.h.  
Investigation of political, cultural, economic, and social developments since 1815. Discussions and readings

**HI 524 HISTORY OF GERMANY TO 1848** 3 s.h.  
Study of evolution of German nation from its prehistoric origins, emphasizing medieval and early modern phases to 1848.

**HI 525 HISTORY OF GERMANY, 1849-1970** 3 s.h.  
Study of development of modern Germany from the Revolution to 1848, including imperial republican and totalitarian phases, to post-War formation of East and West Germany.

**HI 526 HISTORY OF RUSSIA** 3 s.h.  
General survey of Russian history, culture, and institutions. Special consideration given to study of historical forces formative of Revolution of 1917.

**HI 527 HISTORY OF SOVIET RUSSIA** 3 s.h.  
General survey of contemporary Soviet history, culture, and institutions.

Special consideration given to study of communist theory and its place in current Russian historiography.

HI 532 US-BRITISH COMMONWEALTH RELATIONS 3 s.h.  
Aspects of United States and Commonwealth backgrounds and policies that aid mutual understanding and internal accord in modern world

HI 540 COLONIAL AMERICA 3 s.h.  
Survey of original thirteen states from their inception as colonies within the British empire to 1763, the eve of independence. Attention given to their political development, economic position within the empire; relations with Indians; and evolution of their social, educational and religious life.

HI 542 THE AMERICAN REVOLUTION 3 s.h.  
Study of history of United States from beginnings of revolutionary crisis in 1763 through adoption of the constitution and the administration of John Adams. Special emphasis is given the causes and civil war aspects of the revolution, and the constitutional-political development of the new nation

HI 543 CIVIL WAR AND RECONSTRUCTION 3 s.h.  
Study of failure of American democracy to cope with issues of mid-nineteenth century, followed by political, economic, military, and social developments during War and reconciliation of North and South.

HI 544 HISTORY OF U.S., 1876-1900 3 s.h.  
Stresses reaction of various segments of heterogeneous population to rapid industrialization, urbanization, and corporation of American life and emergence of U.S. as a world power; special attention to formation of new institutions.

HI 545 HISTORY OF U.S., 1900-1929 3 s.h.  
Emphasis on political, social, economic, and diplomatic developments in American history between 1900 and 1929

HI 550 HISTORY OF LATIN AMERICA: COLONIAL PERIOD, 1450-1820 3 s.h.  
Study of life of people, Indian cultures, conquest by Spaniards and Portuguese, government during Colonial Period, and Wars of Independence.

HI 551 HISTORY OF LATIN AMERICA: NATIONAL PERIOD, 1820-PRESENT 3 s.h.  
Study of history of nations which have emerged since independence; emphasis on economic, political, cultural, and social developments of these nations, as well as relations of these nations to others in the Hemisphere.

HI 560 HISTORY OF PENNSYLVANIA 3 s.h.  
Emphasizes the cultural, economic, political, and social development of our state in its various periods from colonial to today. Special attention given to diversity of Pennsylvania's people, their institutions, and problems

HI 561 DIPLOMATIC U.S. HISTORY, 1775-1900 3 s.h.  
Traces Foreign Relations of United States from Independence to emergence as a world power. Topics concentrate on themes of commercial relations, political isolation, expansion, and debate over imperialism

HI 562 DIPLOMATIC U.S. HISTORY, 1900-PRESENT 3 s.h.  
Treats primarily our 20th century involvement in world affairs and domestic debate over that involvement. Special emphasis will be placed on role of interest groups and increasing power of Executive Department over Foreign Affairs.

HI 563 SOCIAL AND INTELLECTUAL HISTORY OF U.S. TO 1875 3 s.h.  
Selected topics in early American intellectual and cultural growth, with emphasis on Puritanism, Enlightenment, Cultural Nationalism, and Romantic Movement.

HI 564 SOCIAL AND INTELLECTUAL HISTORY OF U.S. SINCE 1875 3 s.h.  
Selected treatment of historical development of modern American movements in social and political thought, religion, philosophy, fine arts, and literature

HI 565 HISTORY OF BLACK AMERICA SINCE EMANCIPATION 3 s.h.  
Description and analysis of role of blacks in history of United States since the Civil War, emphasis on key leaders, major organizations, leading movements and crucial ideologies of blacks in modern America

HI 566 AMERICAN LABOR MOVEMENT 3 s.h.  
Investigation of growth of American labor movement from nineteenth century to the present; emphasis on the role of Knights of Labor, American Federation of Labor, Industrial Organizations. Study of the working class in its working and living settings

HI 567 ECONOMIC HISTORY OF U.S. 3 s.h.  
Historical development of economic institutions in American life since Independence; emphasis on farming, labor, transportation, banking and manufacturing

HI 568 U.S. URBAN HISTORY 3 s.h.  
A survey of American cities from their beginnings to present emphasizing relationship or urban history to social science theory, and stages and process of city development.

HI 580 HISTORY OF ISLAMIC CIVILIZATION 3 s.h.  
An approach to learning about a non-Western culture; Mohammad, Arabs, Muslims as creators of a great civilization from rise of Islam to 1800; emphasis on cultural institutions and their interrelationships within Middle East.

HI 581 MODERN MIDDLE EAST 3 s.h.  
Survey of changes that have taken place in Middle East and in Islam since eighteenth century and of contemporary problems in that region.

HI 582 HISTORY OF FAR EAST 3 s.h.  
History of China and Japan from ancient times. Buddhism, medieval Japan, Chinese Communism, industrialization. Some consideration of peripheral Asia from 1500.

HI 590 HISTORY OF WOMEN 3 s.h.  
Explores religious, legal, political, and mythic dimensions of women in society from ancient to modern times, including Eastern, Western and American experiences.

HI 591 FILM AS HISTORY 3 s.h.  
This course deals with cinema as social, cultural and intellectual history from its origins to the present day.

HI 599 INDEPENDENT STUDY 3 s.h.  
This course involves directed reading or research for qualified students. We encourage experimental projects and personalized learning. Prerequisite: permission of faculty member.

HI 621 HISTORY SEMINAR 2-3 s.h.  
Area research in the discipline, culminating in a formal paper.

HI 622 HISTORY SEMINAR 2-3 s.h.  
Area Research in the discipline culminating in a formal paper.

## HOME ECONOMICS EDUCATION

The Graduate Program in Home Economics Education leads to a Master of Education Degree. The program is designed for students who wish to take advanced work beyond the bachelor's degree and to become better qualified for home economics education positions.

For admission into this curriculum a student must have completed a baccalaureate degree in home economics with major in home economics education or with a minimum of 35 semester hours of home economics, 19 semester hours in education, including home economics education and student teaching, and a minimum of 3 semester hours in educational psychology. The degree must be from an approved institution.

Food Service majors who have a B.S. degree from an approved institution may be admitted to this program. Graduates from this program with a Food Service and Nutrition background will not be qualified to teach in the public schools nor will this degree help them to meet state certification requirements for teaching Home Economics. However, students can become better qualified for leadership positions in their area of specialization.

Each student admitted to the Graduate School will be assigned a faculty advisor by the Chairman of the Department. This advisor will help the student plan a program of study. Any deviation from the degree requirements shall have the written approval of the advisor and the Department Chairman.

Thesis is optional for all students. The decision to select the thesis or the non-thesis option will be made by the student in consultation with his/her advisor and department chairperson.

prior to the time the student is admitted to candidacy for the degree.

### THESIS OPTION

Candidate will complete 30 hours of approved course work plus a two or four credit thesis. The selection of and the proposal for research shall be approved by the advisor and other members of his/her Graduate Committee. The research shall be carried on by the candidate under the direction of the research advisor and/or committee members.

### NON-THESIS OPTION

In lieu of thesis, candidate must complete 33 hours of approved course work and two extensive research papers. One research paper will be required in HE 571V and the other research paper will be in another Home Economics course selected by the candidate and approved by the advisor and department chairperson.

## **CURRICULUM FOR THE MASTER OF EDUCATION DEGREE**

---

Students working for this degree will complete 30 or 33 semester hours of course work in accordance with the following divisions:

#### I. Professional Development Area (9 s.h.)

A. Humanistic Studies — Three semester hours to be selected from FE 111 through 514.

B. Behavioral Studies — Three semester hours to be selected from EP 504, 573, 576, 578 or 580; or from CE 529, 539 or SE 531.

C. Research — Three semester hours. GR 515 is required.

#### II. Specialization Core (6 s.h.)

HE 571V and HE 576V are required.

#### III. Thesis (0–4 s.h.)

(See description of Thesis and Non-Thesis Options on this page.)

#### IV. Home Economics Education (6–9 s.h.)

Students completing a thesis are required to select six or more semester hours from courses HE 570V through HE 599.

Students not completing a thesis are required to select nine or more semester hours from courses HE 570V through HE 599.

HE 572V is required of any student who has not completed HE 472V or equivalent.

#### V. Subject Matter Concentration (9 s.h.)

Courses are to be selected from courses HE 521 through HE 561. Two subject matter options are available.

OPTION 1: Courses should be selected from two or more subject areas of home economics.

OPTION 2: If a subject concentration is desired, all courses should be selected from one subject area of home economics. A statement regarding the subject matter concentration will appear on the student's transcript.

The three courses HE 510V, HE 512 or HE 574V may be

counted as Home Economics Education or as Subject Matter concentration depending upon focus of course.

Dual level courses taken on the undergraduate level cannot be repeated on the graduate level for graduate degree credit.

A maximum of six (6) tour credits may apply toward degree requirements, but only one to four (1-4) credit hours may be applied in any one subject matter area. A maximum of four credits may be applied for any tour.

## **COURSE DESCRIPTIONS**

### **GENERAL COURSES**

General courses may be used to meet the requirements for subject matter or home economics education depending upon the focus.

HE 510V WORKSHOP IN HOME ECONOMICS 1-6 s.h.  
Provides opportunities for experienced educational personnel to concentrate their study on common professional problems.

HE 512 TOUR IN HOME ECONOMICS 1-6 s.h.  
Aspects of home economics are studied in relation to the culture of areas toured. Some tours which have been offered are: European Tour in Foods, European Tour in Clothing, Textiles and Furnishings; Oriental Tour in Family Life; Foods Tour — U.S.A. Consult brochures, summer session catalogs or chairperson for specific offerings.

HE 574V SEMINAR IN HOME ECONOMICS 1-3 s.h.  
Seminars in selected topics.

### **HUMAN DEVELOPMENT AND THE FAMILY**

HE 521 PROBLEMS IN FAMILY LIVING 3 s.h.  
Emphasis is placed on solving problems created by social change. New knowledge from science, medicine, sociology, economics, art and psychology is

utilized to improve family living. Problems concerned with food, clothing, shelter, management, and family relationships are investigated.

HE 523 FIELD WORK IN FAMILY LIFE OR IN HUMAN DEVELOPMENT 3 s.h.

Designed to study individual and family interaction. Methods of working with various types of families through an analysis of research, scientific literature, and community programs are studied. Advanced graduate students plan and participate in laboratory-type work with individual families. (Permission of instructor for non-majors.)

HE 526 TECHNIQUES OF PARENT EDUCATION 3 s.h.  
Focuses on scope and aims of parent education movement. Methods of helping families become more effective in their parent-child relationships are examined.

### **CLOTHING AND TEXTILES**

HE 530 CLOTHING AND HUMAN BEHAVIOR 3 s.h.  
Understanding factors affecting clothing decisions of differing individuals and families. Cultural, social, psychological and economic influences are considered. Concepts from anthropology, sociology, psychology and economics are explored in studying the relation of clothing to human behavior.

HE 531 CREATIVE CLOTHING 3 s.h.  
Factors that influence clothing design and sources of design inspiration are investigated. Lines, shapes, colors and textures are studied in the creation of clothing to fit the human body. Effects of fabric finishes, drapability, and dimensional stability on design are explored. Two major projects required.

HE 532 RECENT DEVELOPMENTS IN TEXTILES 3 s.h.  
Designed to acquaint the student with new developments in textiles as they affect the consumer. Emphasis on understanding factors involved in selection, use, and care of new fibers, fabrics, and finishes.

### **FOODS AND NUTRITION**

HE 540 ADVANCED HUMAN NUTRITION 3 s.h.  
Nutritional needs and problems occurring at different stages in the life cycle are studied: pregnancy, infancy, early childhood, adolescence, aging.

HE 541 CULTURAL ASPECTS OF GOURMET FOODS 3 s.h.  
Investigation, analysis, and interpretation of the art and science of cooking as influenced by historical, racial, religious and social customs. Both foreign and



domestic gourmet cookery are studied including some food preparation.

- HE 542 CONTEMPORARY ISSUES IN FOODS & NUTRITION** 3 s.h.  
Current information on food and nutrition is evaluated for its reliability

## HOME MANAGEMENT AND FAMILY ECONOMICS

- HE 555 CONSUMER ECONOMICS** 3 s.h.  
Problems in consumer expenditures with emphasis given to effects of current economic and social forces. Individual investigations are required

- HE 556 PROBLEMS IN FAMILY FINANCE** 3 s.h.  
Advanced problems in personal and family finance. Individual investigations in current situations are required

## HOUSING AND INTERIOR DESIGN

- HE 560 PROBLEMS IN HOUSING & INTERIOR DESIGN** 3 s.h.  
Influences which contribute to design of modern home and its furnishings and housing needs are studied in relation to stages in family-life cycle.

- HE 561 HOUSEHOLD EQUIPMENT AND APPLIANCES** 3 s.h.  
In-depth study of household equipment in relation to energy and its distribution and consumption throughout the network systems of the house. Individual problems required

## EDUCATION COURSE DESCRIPTIONS

- HE 570V HOME ECONOMICS IN AMERICAN EDUCATION** 3 s.h.  
Present status of home economics is reviewed in terms of the profession's history and philosophy. Role and contribution of home economics in relation to total educational program at the elementary, secondary, post-secondary levels. Trends and issues critical to future of home economics

- HE 571V CURRICULUM DEVELOPMENT IN HOME ECONOMICS** 3 s.h.  
Various tasks and processes of curriculum development with special attention on making realistic curriculum decisions and using innovative procedures in developing home economics curriculum.

- HE 572V EVALUATION IN HOME ECONOMICS** 3 s.h.  
Study of nature and scope of evaluation in contemporary home economics programs using a variety of evaluative methods and techniques designed to measure a comprehensive range of home economics educational objectives. Special attention to use and construction of teacher-made tests and evaluative devices

- HE 573V SUPERVISION AND ADMINISTRATION IN HOME ECONOMICS** 3 s.h.  
Deals with principles, methods, and techniques of supervision in home economics. Special attention to basic concepts in supervision such as human relations, communication process, decision-making, leadership strategies, and role of action-research in improving school practices.

- HE 575V HOME ECONOMICS IN HIGHER EDUCATION** 3 s.h.  
Contemporary programs at college level are evaluated in terms of major issues, trends, and problems in higher education and professional home economics with emphasis on problems of curriculum development, effective teaching, guidance, and evaluation

- HE 576V ADVANCED METHODS OF TEACHING HOME ECONOMICS** 3 s.h.  
Newer trends in classroom procedure, equipment and materials as well as problems involved in the improvement of instruction will be studied. Implications and implementation of current trends and issues critical to the future of home economics education are emphasized

- HE 577V SPECIAL PROBLEMS IN HOME ECONOMICS** 3 s.h.  
Specific problems with curriculum, teaching, learning experiences and evaluation are stressed. Each student will research a special problem or area of interest

- HE 578V RESEARCH IN HOME ECONOMICS EDUCATION** 3 s.h.  
Methodology is introduced and studied in terms of research problems. Reports by home economics, behavioral science, and education researchers are analyzed and evaluated. Designed to assist the student in defining a thesis. Students should complete HE 571V before scheduling this course

- HE 599 INDEPENDENT STUDY IN HOME ECONOMICS** 1-6 s.h.  
Student will pursue an independent study under the guidance of a faculty member in an area of home economics not previously studied in the student's regular courses and for which the student and advisor identify a need

## **\*COMMUNICATIONS MEDIA**

### **GRADUATE PROGRAMS IN MEDIA**

In the department of Learning Resources and Mass Media the student may choose from the following programs:

- I. Master of Education in Instructional Media
- II. Instructional Media Specialist Certificate
- III. Advanced professional training in the field of Learning Resources and Mass Media either in conjunction with or separate from the pursuit of a graduate degree in some other academic discipline.

Within these programs students may wish to develop a concentration of studies in such specialties as Learning Resources Center-Librarian, Instructional Materials Center Director, Materials Production, Instructional Television and Instructional Development. As such, they will do intensive work in photography, cinematography, graphic production, radio, television, design and development, media management or such combinations of these areas as they may work out with their advisor.

By careful structuring of their program it is possible for students to obtain the M.Ed. degree and the Instructional Media Specialist Certification concurrently. Usually this will require slightly more than the semester hours of minimum credits required for the M.Ed., but students find it to their advantage to fulfill the requirements for both programs. This certificate is issued by the Pennsylvania Department of Education. Obtain application form from the departmental secretary.

\*Department name changed from Learning Resources and Mass Media effective fall 1977.

## **COURSE CONCENTRATION BLOCKS**

All departmental offerings are distributed within the following course concentration blocks. Graduate media majors are required to take some preparation in each block. The program descriptions which follow the outline below describe requirements in detail.

Students are encouraged to visit their advisor and course instructor at frequent intervals, especially during schedule planning stage prior to pre-registration.

BLOCK A. Foundations and Research: LR 500 (see advisor), LR 501, LR 510, LR 515 and GD 550.

BLOCK B. Media Management: LR 530, LR 560, LR 569.

BLOCK C. Media Production: LR 504, LR 540, LR 543, LR 544, LR 545, LR 547, LR 549, LR 550, LR 552 or LR 571.

BLOCK D. Media and Instructional Development: LR 502, LR 503, LR 509, LR 548, LR 561.

AND, LR 580, 1-3 credits per each study or project.

## **PROGRAM REQUIREMENTS**

### **Master of Education in Instructional Media**

#### **Admission Requirements**

In addition to being admitted to the Graduate School, the student must have taken the GRE (aptitude test only). Students wishing to transfer from another graduate program at Indiana to this program must have at least a B average in graduate courses taken here. After completion of at least six semester hours and before 12 semester hours, the student will make formal application to the Graduate School and to the departmental graduate committee for admission to candidacy for a masters

degree. The candidate must have at least a B average in graduate courses taken at Indiana including either the course PC 536, or EP 504 or EP 578, and at least two courses from the Learning Resources Curriculum. He may then be asked to appear before the departmental Graduate Committee.

#### Master of Education in Media Program Outline

- I. Professional Development area (9 s.h.)
  - A. Humanistic Studies (3 s.h.) one of FE 511, 512, 513, 514
  - B. Behavioral Studies (3 s.h.) one of EP 504, 573, 576, 578, 580 or CE 529, CE 539, SE 531 or PC 536.
  - C. Research (3 s.h.) GR 515
- II. Specialization Core (6 s.h.) LR 500 and 503
- III. Subject Area
  - A. LR 569 Internship (2 s.h. minimum) required of all media majors.
  - B. Student elected concentrations. Dependent upon option (see below) selected, student will take 12–18 s.h. of media courses specializing in one block or taking a variety of courses from Media Management, Media Production or Media and Instructional Development Blocks.
  - C. Options
    1. Thesis — 30 s.h. including all of I, II and III A above, plus thesis.
    2. Project — 30 s.h. including all of I, II and III A above, plus project.
    3. Show — 33 s.h. including all of I, II and III A above, plus a show.
    4. Course work — 36 s.h. including all of I, II and III A above plus 18 s.h. media courses.

## Certification as an Instructional Media Specialist

The specialist certificate in Instructional Media may be awarded to students who hold a permanent college certificate valid for elementary or secondary education and who complete 24 semester hours of graduate work in the curriculum of Learning Resources and Mass Media:

LR 500, 503, 530, 560 and 569 plus LR electives for a total of 24 hours are required for certification.

Students not in the education profession may wish to pursue a similar program of studies as preparation for careers as trainers in business, industry and government (BIG).

Graduate school admission does not automatically insure acceptance into the certificate program. Successful applicants will present evidence of (1) the intellectual ability to do acceptable graduate work, (2) satisfactory scores on either the GRE or the Miller's Analogy Test, and (3) professional background. The departmental graduate faculty will make the necessary determinations.

Graduate students from other disciplines may wish to take advanced professional training in the field of Learning Resources and Mass Media.

## COURSE DESCRIPTIONS

LR 500 SEMINAR IN LEARNING RESOURCES 3 s.h.  
Major emphasis on differences in learning materials, learners and teaching methods. The student will do literary research for a better understanding of how learning resources are related to learning process in our society (Staff)

LR 501 THE CLASSROOM USE OF MOTION PICTURES 3 s.h.  
Develops a basis for critical evaluation of films for various educational purposes. Emphasis on an understanding of production techniques, stereotypes, prejudices, and misconceptions which influence the quality of educational films.

and upon the methods of selection, acquisition, evaluation and distribution of films. (MacIsaac, Mattox)

**LR 502 PROGRAMMING SYSTEMATIC INSTRUCTION 3 s.h.**

Will cover historical development theory and philosophy, audio instructional equipment, programmed texts, theories, of programming, types of programs available, analysis and evaluation of research. (Sargent)

**LR 503 DESIGN & WRITING FOR MEDIA PRODUCTIONS 3 s.h.**

Provides an introduction to script writing for films and filmstrips. Various styles and techniques of writing will be analyzed and each student will be expected to experiment with the techniques presented. Emphasis on writing and criticism, in class, of student script. (Mattox, MacIsaac)

**LR 504 FOUNDATIONS OF BROADCASTING 3 s.h.**

An examination of the historical, legal, and economical aspects of modern broadcasting. Extensive readings in fundamental theory and a study of current station and network practices, educational as well as commercial. (Lesneskie)

**LR 509 PROGRAMMING MULTI MEDIA MATERIALS 3 s.h.**

An advanced production course utilizing instructional development process to mediate an instructional sequence. Students will act as consultants in planning and production of a multi-media learning package. Prerequisite: LR 561. (Juliette)

**LR 510 RESEARCH METHODOLOGY IN MEDIA 3 s.h.**

Research methodologies and reports are studied and research proposals and reports are written. Types of research designs include historical, descriptive, inferential and quasi-experimental. Project designs and reports in the area of instructional/learning media production are studied separately from the four conventional types listed above. (Mattox)

**LR 515 ROLE OF LEARNING RESOURCES 3 s.h.**

Examines role of perception as it pertains to sensory experiences and inner cognitive processes in relationship to maturation, goals and drives, and environment. Seeks to relate psychological processes to learning resources, with emphasis on newer media. (Lavenburg)

**LR 530 CLASSIFICATION AND CATALOGING OF LEARNING RESOURCES 3 s.h.**

Principles of classifying and cataloging learning resources such as motion pictures, video tapes, filmstrips, slides, transparencies, disk and tape recordings, microfilm, microcard and microfiche, flat pictures, etc. For learning resources administrators and librarians. (Sargent)

**LR 540 PREPARATION OF LEARNING RESOURCES 3 s.h.**

Introduction to preparation of a wide variety of classroom materials, in which building coordinators, as well as others, can assist teachers — letterings, coloring, mounting, bulleting boards, feltboards, and preparation of pictures, maps, posters, charts, and graphs for projected and non-projected use. (Klinginsmith)

**LR 543 SLIDE AND FILMSTRIP PRODUCTION 3 s.h.**

Emphasizes techniques of color and b/w slide preparation, duplication, titling and binding; techniques necessary to produce color filmstrips on a commercial basis, and students will participate in making of a filmstrip through all stages, from script to screen. Techniques for making home-made filmstrips will also be explored. Each student must furnish his own 35mm camera, and an acceptable exposure meter. Prerequisite: LR 571 Photographic Fundamentals. (MacIsaac)

**LR 544 BEGINNING CINEMATOGRAPHY 3 s.h.**

Emphasis on effective use of motion picture camera and editing tools to make useful, locally produced teaching films. No previous experience is necessary, but the student should own or have access to an 8mm or 16mm camera, and an acceptable exposure meter. (MacIsaac)

**LR 545 ADVANCED MOTION PICTURE PRODUCTION 3 s.h.**

Production planning for motion pictures, directing, advanced picture and sound editing techniques, and use of sound recording and lab facilities. In addition to live action cinematography, titling, animation, and special effects photography will be investigated. Prerequisite LR 544 (MacIsaac)

**LR 547 ANIMATION 3 s.h.**

Introduces a variety of motion picture animation techniques and offers practical experience in planning and carrying out production of animated sequences. Experimentation with filmograph, cut-out, puppet, and full cel animation. Practice in designing, drawing, tracing, inking, and painting cels; preparation of blackboards, use of cel boards; animation camera, and stand; preparation of story boards and cue sheets; integration of visual and sound. Prerequisite: LR 544 (Mac Isaac)

**LR 548 WRITING FOR RADIO AND TELEVISION 3 s.h.**

For teachers, school administrators, and non-school persons interested in public service, non-professional, or educational broadcasting. Presents theory and practice in planning, writing, and producing various kinds of programs for listeners in and out of schools. Educational and/or radio experience is desirable but not required. (Lesneskie)

**LR 549 TELEVISION PRODUCTION AND DIRECTION 3 s.h.**

An intensive lab course using closed circuit facilities designed to develop skills in program production and direction. Theory and practice of production is examined with each student expected to produce a television program during the course. (Lesneskie)

**LR 550 ADVANCED AUDIO RECORDING TECHNIQUES 3 s.h.**

Theory and practice of recording sound for motion pictures, video tapes, audio tapes, sound filmstrips, etc. Will use sound on sound and other special recording techniques. (MacIsaac)

**LR 552 ADVANCED TELEVISION PRODUCTION 3 s.h.**

For advanced graduate student with prior training and experience in television. Advanced television production techniques, set design, lighting, remote video taping, special effects, and production of a professional quality documentary. Prerequisite: LR 549. (Lesneskie)

**LR 560 MANAGEMENT OF LEARNING  
RESOURCES PROGRAMS 3 s.h.**

Considers the problems in setting up and managing an integrated program, including production, selection, utilization, and management of Learning Resources Centers; and problems of finance and organization of the different services; relationships among school systems, colleges, and community and adult groups; and evaluation standards for various services. (Sargent)

**LR 561 INSTRUCTIONAL DESIGN AND  
INSTRUCTIONAL DEVELOPMENT 3 s.h.**

Theory for advanced graduate students where they will develop competence in: instructional design, systems, approach to instructional decision making, defining purposes, organizing content, selecting learning methods and identifying technological developments to meet multiple needs of individuals and society. Prerequisites: LR 515 and Educational Psychology (see instructor). (Lavenburg)

**LR 569 INTERNSHIP PROGRAM OF LEARNING  
RESOURCES SPECIALISTS 2-6 s.h.**

A candidate would work in a carefully planned variety of roles in a comprehensive regional learning resources center or similar situation, television broadcasting or closed-circuit facility, motion picture production agency, programmed learning development organization, learning resources workshop program, little theater group, major museum or approved equivalent, under competent university and agency supervision, and would be rated by both the cooperating agency and the University. (Staff)

**LR 571 PHOTOGRAPHIC FUNDAMENTALS 3 s.h.**

Emphasis on use of still picture camera and the darkroom for instructional purposes, the making of b/w negatives, 35mm slides, copywork, developing b/w and color film, and b/w contact printing and enlarging. Each student must furnish his own 35mm camera and an acceptable exposure meter. No previous photographic experience is necessary. (MacIsaac, Mattox)

**LR 572 ADVANCED PHOTOGRAPHY I 3 s.h.**

Students in Advanced Photography I will be expected to develop their camera and print-making skills to the degree that they can produce salon-quality photographic prints. Students will understand the photographic processes utilized in producing a high quality negative and print to the extent that they can manipulate those processes to communicate an intended message with their photographs. Emphasis will be placed on camera and print control as well as composition and negative end print manipulation. Prerequisites: LR 571 and permission of the instructor. (Juliette)

**LR 573 ADVANCED PHOTOGRAPHY II**

In Advanced Photography II, a student will pursue on an individual basis those photographic skills which he wants to develop to a high proficiency. Topics to be covered in lecture include high-contrast photography, silk screen photography, tone line, bas relief, posterization, etch bleach, photo sketching, print screening, color print and slide making, lighting techniques and flash photography as well as other topics that might be pertinent to meeting a student's objectives. Prerequisites: LR 571 and permission of the Instructor. (Juliette)

**LR 599 GRADUATE INDEPENDENT STUDY 1-3 s.h.**

The student may elect, with approval of his advisor, to do several different independent study projects. University facilities and equipment are provided but student must supply his own materials and pay for processing and production costs. Prerequisite: Successful completion of the basic courses in the medium selected, and professor's approval. (Staff)

## **MATHEMATICS**

---

The Mathematics Department offers the Master of Education degree with major in mathematics and the Master of Science degree.

The Master of Education program is specifically designed for secondary mathematics teachers. Its purpose is to provide an opportunity for the student to increase his knowledge of mathematics and to become aware of research and innovations in mathematics education.

The course requirements for the Master of Science program are quite flexible and include an option of six hours in an area related to mathematics. This flexibility allows the program to serve many purposes, including appropriate choices for secondary mathematics teachers, for persons preparing for employment in areas of applied mathematics, and for students who will pursue further graduate work in mathematics.

Each graduate student will be assigned an academic advisor to aid in selecting the most appropriate program. Approval of the advisor is required for all courses leading to the Master's degree.

### **MASTER OF EDUCATION DEGREE**

---

A minimum of 30 semester hours is required for the Master of Education degree. Courses taken must satisfy the following requirements.

1. Exactly one course (3 s.h.) from FE 511-514
2. Exactly one course (3 s.h.) from EP 504, EP 573, EP 576, EP 578, EP 580, CE 529, CE 539, SE 531
3. GR 515, Elements of Research (3 s.h.)

4. Exactly 6 s.h. from MA 510, MA 511, MA 540, MA 542. With special permission from the advisor, EM 521 and EM 522 are acceptable for this requirement.
5. A minimum of 15 semester hours of mathematics content courses. All three-hour graduate mathematics courses are considered content courses with the single exception of MA 600. MA 531 and MA 559 are required unless comparable courses have been completed at the undergraduate level.

### **MASTER OF SCIENCE DEGREE**

---

Every candidate for the Master of Science Degree in Mathematics must complete at least 30 semester hours of graduate work. These courses must satisfy the following criteria:

1. The course MA 600, Methods of Research in Mathematics is required of all students.
2. The two courses MA 559, Introduction to Abstract Algebra and MA 531, Advanced Calculus I, are required unless comparable courses have been completed at the undergraduate level.
3. Each student must complete 27 hours of content courses in mathematics or 21 hours of content courses in mathematics and 6 hours in a related area. In either case, the choice of courses in both mathematics and in the related area must be made with the approval of the advisor.

### **COURSE DESCRIPTIONS**

---

MA 510 THE TEACHING OF JUNIOR HIGH  
SCHOOL MATHEMATICS

2 s.h.

Explores problems of teaching mathematics at junior high school level.

Emphasis on a discovery, laboratory-oriented approach to teaching. Prerequisite: Permission of the instructor.

**MA 511 THE TEACHING OF SENIOR HIGH SCHOOL MATHEMATICS** 2 s.h.

National and international forces shaping today's mathematics programs, curriculum development and research, art of generating interest, formation of concepts, proof, problem solving, generalization, and evaluation. Special attention to teaching of topics from algebra and calculus, and to modern approach of teaching geometry and trigonometry. Prerequisite: Permission of the instructor.

**MA 522 THEORY OF PROBABILITY** 3 s.h.

Probability theory necessary for an understanding of mathematical statistics is developed; applications of the theory are given, with emphasis on binomial, Poisson, and normal distributions. Distributions of sums and a central limit theorem are developed. Three hours lecture per week.

**MA 524 MATHEMATICAL STATISTICS I** 3 s.h.

Multivariate distributions, properties of the moment generating function, change of variable technique, Chi-square distribution, estimation, confidence intervals, testing hypotheses, contingency tables, goodness of fit. Many practical applications. Use of calculating machines where appropriate. Three hours lecture per week.

**MA 525 MATHEMATICAL STATISTICS II** 3 s.h.

Correlation and regression from applied and theoretical points of view, bivariate normal distribution, small sample theory. Student's *t* and *F* distributions, analysis of variance, nonparametric methods. Many practical applications. Use of calculating machines or computers where appropriate. Three hours lecture per week.

**MA 531-532 ADVANCED CALCULUS I, II** 3, 3 s.h.

A rigorous investigation of continuity, differentiation, and integration on real *p*-dimensional space. The Riemann-Stieltjes integral, infinite series, and infinite series of functions are also studied. Prerequisite: Permission of the advisor.

**MA 533-534 COMPLEX ANALYSIS I, II** 3, 3 s.h.

Introduces fundamental concepts of complex analysis and includes following topics: complex numbers, functions, sequences, analytic functions, elementary functions, complex integration, power series, Laurent series, singular points, calculus of residues, infinite product and partial fraction expansion, conformal mapping, and analytic continuation. Prerequisite: MA 531 or its equivalent.

**MA 535-536 REAL ANALYSIS I, II** 3, 3 s.h.

Classical theory of functions of a real variable and of measure and integration theory. Prerequisite: MA 531 or its equivalent.

**MA 537 DIFFERENTIAL EQUATIONS** 3 s.h.

The existence theorems of ordinary differential equations are proved and extended to higher dimensional spaces. Numerical methods are used to produce approximate solutions. Singular points for autonomous differential equations are studied. Prerequisite: MA 531, or its equivalent.

**MA 540 HISTORY OF MATHEMATICS** 2 s.h.

Men and ideas that have shaped the course of events in mathematics are examined. Major attention is given to developing activities for secondary school mathematics classroom which incorporate the historical viewpoint.

**MA 542 CURRICULUM & SUPERVISION IN MATHEMATICS** 2 s.h.

Basic principles underlying an effective mathematics curriculum are examined from both a theoretical and an experimental viewpoint. Role of supervisor as a source of stimulation, leadership, and expertise in teaching of mathematics is investigated.

**MA 558 NUMBER THEORY** 3 s.h.

Elementary properties of divisibility, congruences, Chinese remainder theorem, primitive roots and indices, quadratic reciprocity, Diophantine equations, and number theoretic functions. Prerequisites: Differential and Integral Calculus.

**MA 559 INTRODUCTION TO ABSTRACT ALGEBRA** 3 s.h.

Basic algebraic structures such as groups, rings, integral domains, and fields. Designed to develop the student's ability to construct formal proofs and to work within an abstract axiomatic system. Prerequisite: Permission of the advisor.

**MA 561-562 ABSTRACT ALGEBRA I, II** 3, 3 s.h.

Primary emphasis on development of polynomial rings, factorization, and field extension leading up to Galois Theory. Additional topics in group theory, ring theory, and study of modules are included. Prerequisite: MA 559 or its equivalent.

**MA 563 LINEAR ALGEBRA** 3 s.h.

Theory of vector spaces and linear transformations and applications to linear equations, determinants, and characteristic roots are studied. Prerequisites: MA 559 or its equivalent or undergraduate linear algebra.

**MA 571 PROJECTIVE GEOMETRY**

3 s.h.

An introduction to Klein's formulation of geometry of the invariant theory of a given set under a given group of transformations and develops projective spaces of 1 and 2 dimensions and conics and quadratic forms. Prerequisites: Undergraduate courses in linear algebra and geometry

**MA 572 AFFINE GEOMETRY**

3 s.h.

Examines affine and metric geometries based on an axiom system stated in terms of linear algebra, which leads to important theorems of classical geometry. Prerequisites: Undergraduate courses in linear and abstract algebra.

**MA 573 TOPOLOGY**

3 s.h.

Basic topological concepts, including some topological invariants. Relationships between topology and other disciplines of mathematics are discussed. Prerequisites: MA 531 or its equivalent.

**MA 575 FOUNDATIONS OF MATHEMATICS I**

3 s.h.

Designed to acquaint the student with logical techniques used in proof and set theory. Topics include symbolic logic, rules and inference, validity of arguments, algebra of sets, cardinal numbers, the well-ordering property, and the Axiom of Choice.

**MA 576 FOUNDATIONS OF MATHEMATICS II**

3 s.h.

Properties of axiom systems including consistency, independence, and completeness for propositional calculus and first-order predicate calculus. Prerequisites: MA 575 and at least six semester hours of graduate level mathematics

**MA 590-593 TOPIC SEMINARS IN MATHEMATICS**

3 s.h.

Special topics which go beyond the scope of regularly offered courses. Offered on basis of student interest and available staff. The student may take more than one Topic Seminar with the written approval of the advisor. Prerequisite: Consent of the instructor.

**MA 600 METHODS OF RESEARCH IN MATHEMATICS**

2 s.h.

Review of literature and recent research in mathematics. Emphasis is on the use of periodicals and other library resources. Each student will complete an independent study of an approved topic, including a written report.

**MA 690 INDEPENDENT STUDY IN MATHEMATICS**

3 s.h.

Under the guidance of a faculty member, a student may study some area of mathematics not in the regular courses.

**SC 573-574 COMPUTATIONS IN PHYSICS & CHEMISTRY**

4 s.h.

Designed to help the teacher of physics and chemistry, who has a limited background in mathematics, to become more skillful in solution of problems usually encountered in physics and chemistry courses. It should also provide him with a more adequate background to deal with problems in his courses in graduate program.





## MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS

---

The program leading to a Master of Education Degree in Mathematics for Elementary School Teachers is designed to give the elementary school or middle school teacher both depth and breadth in the mathematical concepts essential to a contemporary school mathematics program. An integral part of the program will be to familiarize the students with recent developments in curriculum, instruction, and implementation of contemporary mathematics programs in the elementary schools. Upon completion of the program the student will be prepared to serve as a supervisor, coordinator or resource person for the elementary or middle school mathematics program within his school or school district. For teachers in the public schools, the program meets the credit requirements for instructional Level II certification.

Each person admitted to the program will be assigned an advisor who will assist the student in selection of the course work best suited to the student's background and professional aspirations.

A minimum of 30 semester hours is required for the Master of Education in Mathematics for Elementary School Teachers Degree. Courses taken must satisfy the following requirements:

I. Professional Development Area — 9 semester hours as listed below:

A. Humanistic Studies — 3 semester hours should be selected from FE 511-514. Course descriptions are under listings for the Foundations of Education department.

B. Behavioral Studies — 3 semester hours should be selected from the following: EP 504, EP 573, EP 576, EP 578, EP 580, CE 529 (Elem.), CE 539, or SE 531. Course descriptions are under the appropriate departmental listings for the Educational Psychology, Counselor Education, and Special Education departments.

C. Educational Research — 3 semester hours.  
GD 515 Elements of Research.

II. Specialization Core — 6 semester hours required from EM 520-522.

III. Subject Matter Concentration Area — 11-15 semester hours.

A minimum of 15 semester hours will usually be selected from EM 501-522 if the student elects not to write a thesis. If the student elects to write a thesis, 11 semester hours will be taken in the Subject Matter Concentration Area. Courses other than those with "EM" department label (such as MA 690) may be taken to meet the Subject Matter Concentration Area requirements with the advisor's consent.

IV. Thesis (optional) — 2-4 semester hours.

A student may elect to write a thesis for 2-4 semester hours of credit after consultation with his advisor. This decision must be made at the time the student is admitted to candidacy for the degree.

Thesis credits will be determined by the advisor in consultation with the student. No more than 3 credits may be received for a noncommittee thesis.

## **INTERNSHIP PROGRAM AS PART OF THE MASTER OF EDUCATION IN MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS DEGREE PROGRAM**

---

Indiana University of Pennsylvania in cooperation with a selected school system offers a graduate level Internship Program leading to the Master of Education in Mathematics for Elementary School Teachers degree. This program is intended to provide a limited number of well qualified graduate students with teaching experiences in a compensatory K-8 mathematics program while completing the requirements for the Master of Education in Mathematics for Elementary School Teachers degree.

The professional work experiences of the interns will earn graduate credit and therefore will be subject to review and evaluation by a faculty member from the University, as well as being under the supervision of designated public school personnel.

Information regarding the Internship Program may be obtained from: Director of Graduate Studies in Mathematics for Elementary School Teachers, Mathematics Department, Indiana University of Pennsylvania, Indiana, PA 15701.

## **COURSE DESCRIPTIONS**

---

### **EM 501 BASIC CONCEPTS IN MATHEMATICS I 3 s.h.**

For students who have not taken MA 160 or an equivalent course as undergraduates. Will give a good understanding of development and structure of systems of numeration up to and including the set of real numbers.

### **EM 502 BASIC CONCEPTS IN MATHEMATICS II 3 s.h.**

For students who as undergraduates have not taken MA 250 or an equivalent course. Will give a basic understanding of algebraic properties of different mathematical systems, and help the student to understand how properties of number systems are interrelated.

### **EM 504 FOUNDATIONS OF ALGEBRA 3 s.h.**

Concepts of an algebraic system and its basic structure, group, ring, integral domain, field and vector space are considered within the context of the mathematical maturity of the student. Other concepts include — relation and function, polynomials and polynomial equations, systems of equations, and systems of inequalities. Concepts at the elementary level are illustrated and studied to afford opportunity for application of the technique developed. Prerequisite: EM 502 or equivalent.

### **EM 505 PRINCIPLES OF GEOMETRY I 3 s.h.**

Acquaints students with an informal approach to geometry by looking at world of shapes and their properties. Students involved in activities that can be used in elementary classroom; they will look at practical instances of various theorems of both plane and solid figures. The newer notation, vocabulary and methods will be used and discussed. Prerequisite: EM 502 or equivalent.

### **EM 506 PRINCIPLES OF GEOMETRY II 3 s.h.**

This course is an extension of EM 515. Some topics will be studied in greater depth, but relatively informally. Non-Euclidean geometries studied through related activities. Prerequisite: EM 505 or equivalent.

### **EM 507 PRE-CALCULUS MATHEMATICS I 3 s.h.**

Will examine function concept as applied to elementary real number functions and techniques used to graph these functions. Topics include real number functions such as absolute value function, step functions, linear quadratic and other polynomial functions, trigonometric and other periodic functions, and inverse functions such as exponential and logarithmic functions. Students will examine curricular materials that develop these concepts in grades K-8. Prerequisite: EM 502 or equivalent.

### **EM 508 PRE-CALCULUS MATHEMATICS II 3 s.h.**

Will extend investigations begun in EM 507 or real relations and their graphs. Topics included are relations and functions whose graphs are conic sections, transformations of coordinate systems and the complex number system as a vector space. Consideration given to placement of these concepts in the K-12 curriculum. Prerequisite: EM 507 or equivalent.

**EM 509 INTRODUCTION TO NUMBER THEORY 3 s.h.**

Introduction to topics of elementary number theory including basic operations and properties of integers, divisibility properties of integers; modular arithmetic and congruences; diophantine equations; interesting relationships among numbers, applications of number theory in elementary school mathematics. Prerequisite: EM 502 or equivalent.

**EM 510 INTRODUCTION TO LOGIC AND BOOLEAN ALGEBRA 3 s.h.**

Introduction to some basic ideas, terminology and notation of logic and Boolean Algebra. Topics considered: symbolic logic, with special emphasis on algebra of propositions; applications of Boolean Algebra such as algebra of sets and switching circuits; an introduction to quantification theory and its value in determining validity of mathematical arguments, inference schemes and logical puzzles and a consideration of other topics in logic suitable for a K-8 mathematics curriculum. Prerequisite: EM 502 or equivalent.

**EM 511 INTRODUCTION TO COMPUTING MACHINES AND THEIR USES 3 s.h.**

Introduces student to computing machines and techniques which could have implications for the contemporary elementary school mathematics curriculum. Topics include: understanding of construction and uses of nomograms; slide rules; desk calculators and high speed digital computer; introduction to computer programming using "Basic" computer language; use of computer for Computer Assisted Instruction in grades K-8. Prerequisite: EM 502 or equivalent.

**EM 512 INTRODUCTION TO PROBABILITY & STATISTICS 3 s.h.**

Introduces students to elementary concepts of probability and statistics which will enable them to analyze data, make predictions and determine what concepts may be used with children. Prerequisite: EM 502 or equivalent.

**EM 513 CONCEPTS OF CALCULUS 3 s.h.**

Introduction to differential and integral calculus designed to develop basic concepts and to show both power of calculus and its position in mathematics. Relation of calculus to the fundamental concepts developed in elementary school and middle school mathematics. Prerequisite: EM 508 or equivalent.

**EM 515 INTUITIVE TOPOLOGY 3 s.h.**

Selected topological concepts from an intuitive rather than an axiomatic viewpoint. Topics included are: topological equivalence; networks; maps; Jordan Curve Theorem; topological transformations; spaces; Piaget's studies regarding topological understandings of children; methods and material for teaching related topics. Prerequisite: EM 505 or equivalent.

**EM 520 CURRICULUM & INSTRUCTION IN ELEMENTARY SCHOOL MATHEMATICS PROGRAMS 3 s.h.**

Gives the experienced elementary teacher access to latest literature, equipment, materials and procedures. Topics include: experimental programs that have made an impact on teaching and learning; criteria for selection of suitable new texts for a school district; ways of implementing a contemporary program; investigation, discussion, demonstration and evaluation of manipulative aids. Prerequisite: EM 502 or equivalent.

**EM 521 THE LABORATORY APPROACH TO TEACHING MATHEMATICS 3 s.h.**

Development of lab approach to the teaching of mathematics. Includes both an intensive study of techniques organization and supervision of laboratory activities and the practical design construction and implementation of materials.

**EM 522 DIAGNOSIS AND REMEDIAL TEACHING OF MATHEMATICS 3 s.h.**

Examines why some children have difficulty in learning mathematical concepts and present tools and techniques for diagnosing and remediating common difficulties in elementary and middle school mathematics. Course valuable for those teaching in elementary, middle school or remedial programs.



## **MUSIC AND MUSIC EDUCATION**

---

The graduate program in music provides the student with opportunities to improve his skills as teacher, performer or scholar beyond the bachelor's degree. Upon acceptance by the Graduate School, each student consults the Director of Graduate Studies in Music who will help to plan the sequence of courses, and who will be responsible for the formation of the thesis or recital committee.

**Admission:** Undergraduate degree with major in music or its demonstrated equivalent is required. Placement examinations will be required in theory, music history, piano proficiency and principal performing medium. The advisor will use the results of these examinations to determine areas of deficiency and to prescribe specific electives.

### **CURRICULUM FOR MASTER OF ARTS IN MUSIC**

---

Core Courses: MU 500, MU 516 (MU 518 for Music Education) and MU 532 9 s.h.

Major Concentration:

- I. Music History and Literature — Courses (4) are selected from the following:  
MU 503, MU 504, MU 505, MU 507, MU 508, MU 510, MU 518 12 s.h.
- II. Music Theory and Composition — Courses (4) are selected from the following:  
MU 511, MU 512, MU 513, MU 514, MU 515, MU 518 11–12 s.h.
- III. Music Performance — Applied music courses in the

major performance area  
AM 501–670

12 s.h.

- IV. Music Education — MU 519 and MU 520 are required; with recital or thesis, two or three additional courses are selected; without recital or thesis, up to four additional courses are selected from the following:  
MU 501, MU 502, MU 528, MU 529, MU 531, MU 533, MU 534, MU 535, MU 536, MU 537, MU 540–550 10–14 s.h.

Elective Courses:

If major concentration is I, II, or III, courses totaling 6 s.h. are selected according to students' needs and interests.

If major concentration is IV, select a music theory or history course and applied music study in students' major or minor performance area

Thesis or Recital:

- |        |                                                                                                       |
|--------|-------------------------------------------------------------------------------------------------------|
| GD 550 | Thesis—If major concentration is I or II 3–4 s.h.<br>(Optional if major concentration is IV) 2–4 s.h. |
| GD 551 | Recital—If major concentration is III 4 s.h.<br>(Optional if major concentration is IV) 2–4 s.h.      |

### **CURRICULUM FOR MASTER OF EDUCATION IN MUSIC EDUCATION**

---

I. Professional Development Area (9 s.h.)

- A. Humanistic Studies (3 s.h.) — One of the following:  
FE 511, FE 512, FE 513, or FE 514
- B. Behavioral Studies (3 s.h.) — One of the following:  
EP 504, EP 573, EP 576, EP 578, EP 580, CE 529, CE 539, or SE 531

- C. Research (3 s.h.)  
GR 515, Elements of Research

II. Specialization Core (6 cr.) — Two of the following:

- |          |                                        |         |
|----------|----------------------------------------|---------|
| F.E. 515 | Decision Making Curriculum Development | 3 cr.   |
| L.R. 500 | Seminar in Learning Resources          | 3 cr.   |
|          | Departmental Methods Course(s)         | 3-6 cr. |
|          | Departmental Curriculum Course(s)      | 3-6 cr. |

III. Subject Area and/or Electives and/or Thesis (15 cr.)

A. Required Courses — Music Education Core (9 cr.)

- |        |                                        |       |
|--------|----------------------------------------|-------|
| MU 518 | Comprehensive Musicianship             | 3 cr. |
| MU 519 | Methods for Comprehensive Musicianship | 3 cr. |
| MU 520 | Foundations of Music Education         | 3 cr. |

B. Elective Courses (6 cr. selected from the following list)

- |        |                                                                     |       |
|--------|---------------------------------------------------------------------|-------|
| MU 501 | Advanced Choral Conducting                                          | 2 cr. |
| MU 502 | Advanced Instrumental Conducting                                    | 2 cr. |
| MU 528 | Contemporary International Approaches to Elementary Music Education | 2 cr. |
| MU 529 | Advanced String Pedagogy                                            | 2 cr. |
| MU 531 | Administrative Problems in Music Education                          | 2 cr. |
| MU 533 | Comparative Choral Methods                                          | 2 cr. |
| MU 534 | Practicum in Instrumental Music                                     | 2 cr. |
| MU 535 | Psychology of Music Education                                       | 2 cr. |
| MU 536 | Advanced Technology of Music Teaching                               | 2 cr. |
| MU 537 | Techniques of the Marching Band                                     | 2 cr. |

- |                                  |                         |         |
|----------------------------------|-------------------------|---------|
| MU 540-550 Summer Music Workshop | (content varies)        | 1-3 cr. |
| AM 501-670 Applied Music         | Other approved elective | 1-4 cr. |
| C. Thesis or Recital (optional)  |                         | 2-4 cr. |

## COURSE DESCRIPTIONS

- |                                                                                                                                                                                                                                                                                        |                                  |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------|
| MU 500                                                                                                                                                                                                                                                                                 | BIBLIOGRAPHY OF MUSIC            | 3 s.h. |
| Introduces graduate students to various types of music, music literature and bibliographical tools which exist and which may be used in research in music. As a project, each student will prepare an extensive annotated bibliography of a music subject within his special interest. |                                  |        |
| MU 501                                                                                                                                                                                                                                                                                 | ADVANCED CHORAL CONDUCTING       | 2 s.h. |
| Material will include large choral works with and without accompaniment. Student will be expected to develop skills in reading score.                                                                                                                                                  |                                  |        |
| MU 502                                                                                                                                                                                                                                                                                 | ADVANCED INSTRUMENTAL CONDUCTING | 2 s.h. |
| An intensive study of large instrumental works. Skill development of each individual will be stressed.                                                                                                                                                                                 |                                  |        |
| MU 503                                                                                                                                                                                                                                                                                 | MUSIC OF THE BAROQUE ERA         | 3 s.h. |
| A survey of music from about 1600 to 1750.                                                                                                                                                                                                                                             |                                  |        |
| MU 504                                                                                                                                                                                                                                                                                 | MUSIC OF THE CLASSIC ERA         | 3 s.h. |
| A survey of music from about 1725 to about 1827                                                                                                                                                                                                                                        |                                  |        |
| MU 505                                                                                                                                                                                                                                                                                 | MUSIC OF THE ROMANTIC ERA        | 3 s.h. |
| A survey of music from about 1800 to 1910.                                                                                                                                                                                                                                             |                                  |        |
| MU 507                                                                                                                                                                                                                                                                                 | MUSIC OF THE 20TH CENTURY        | 3 s.h. |
| A survey of the principal stylistic trends in music from 1900 to the present                                                                                                                                                                                                           |                                  |        |
| MU 508                                                                                                                                                                                                                                                                                 | MUSIC OF THE 16TH CENTURY        | 3 s.h. |
| A survey of music from about 1500 to about 1600.                                                                                                                                                                                                                                       |                                  |        |

**MU 510 SEMINAR IN MUSIC** 3 s.h.  
 Subject matter will change each semester. Students will make presentations and write an extensive research paper. Seminar may be repeated provided subject matter is not (with departmental approval). An in-depth study can be made of narrowly defined areas, such as life and/or works of a specific composer or group of composers.

**MU 511 COMPOSITION** 3 s.h.  
 Composition of Music in various song forms through the rondos and the larger sonata allegro form. Careful analysis of similar forms of major composers. Instruction will be highly individualized and will depend considerably on personal interest of the student.

**MU 512 ADVANCED ORCHESTRATION** 3 s.h.  
 Consideration to problems of scoring for full symphony orchestra, string orchestra and chamber orchestra. Students will produce a full score and orchestra parts so that orchestration may be tested by actual playing by the University Symphony.

**MU 513 ADVANCED BAND SCORING** 3 s.h.  
 Problems of scoring for modern concert band. In addition, problems of scoring for brass band, woodwind choir, and percussion ensemble will be considered.

**MU 514 ADVANCED CHORAL ARRANGING** 2 s.h.  
 Four-part writing for chorus. Five, six, seven, and eight-part writing will comprise large part of the course. Special consideration will be given to problem of writing for men's and women's voices

**MU 515 CANON, DOUBLE COUNTERPOINT, AND FUGUE** 3 s.h.  
 Application of contrapuntal techniques through analysis and creative writing. Included will be study and writing of two- and three-voice canons; two- and three-part inventions; and two-, three-, and four-voice fugues.

**MU 516 ANALYTICAL TECHNIQUES** 3 s.h.  
 Study of representative compositions of various periods, with emphasis on formal harmonic and stylistic analysis. Student will develop basic analytical techniques necessary for analysis of music of any period.

**MU 518 COMPREHENSIVE MUSICIANSHIP** 3 s.h.  
 Combines undergraduate concepts and skills in music theory, literature, and performance at an advanced level using an integrated approach. Prepares student to function in a variety of musical roles.

**MU 519 METHODS FOR COMPREHENSIVE MUSICIANSHIP** 3 s.h.  
 Includes learning strategies, experiences, and activities appropriate for introducing Comprehensive Musicianship at elementary and secondary school levels.

**MU 520 FOUNDATIONS OF MUSIC EDUCATION** 3 s.h.  
 Study of historical, philosophical and social foundations of music education including current trends in educational thought and their implications for school music program.

**MU 521 MUSIC LITERATURE AND MATERIALS (NON-MUSIC MAJORS ONLY)** 2 s.h.  
 Enhance musical background of elementary teacher through acquaintance with suitable literature and materials. (See Elementary Education Program).

**MU 528 CONTEMPORARY INTERNATIONAL APPROACHES TO ELEMENTARY EDUCATION** 2 s.h.  
 An introduction to new developments in elementary music education practices based on techniques originated by Carl Orff in Germany, Zoltan Kodaly in Hungary and Shinichi Suzuki in Japan. Authentic adaptations of music and materials in lecture, demonstration and workshop situations.

**MU 529 ADVANCED STRING PEDAGOGY** 2 s.h.  
 Study of specific techniques and problems of teaching violin, viola, cello, and double bass in both individual and class situations.

**MU 531 ADMINISTRATIVE PROBLEMS IN MUSIC EDUCATION** 2 s.h.  
 Review of conventional administrative organization of music education in public schools. Role of music director, music specialist, consultant, and music resource teacher will be carefully defined. Consideration of problems of scheduling in public school. Current issues concerned with music education and public education in general will be considered including curriculum development.

**MU 532 RESEARCH TECHNIQUES IN MUSIC** 3 s.h.  
 Study of research techniques appropriate for music and music education including selection of research problem, collection of data, types of research, survey of current research studies in music education and use of library in connection with research problems. Elements of statistics are introduced as needed to interpret research reports. As part of requirements, student will prepare a written plan for research project or thesis.

**MU 533 COMPARATIVE CHORAL METHODS** 2 s.h.  
Materials and procedures of preparation of vocal groups for public performance. Several accepted, yet contrasting, approaches will be considered, ranging from the Christiansen technique to that of John Finley Williamson. Special attention to program building.

**MU 534 PRACTICUM IN INSTRUMENTAL MUSIC** 2 s.h.  
Consideration of those materials and procedures which have been proven by actual use in the United States. These various approaches will be compared and critically analyzed by the class. Rehearsal techniques, efficient use of time and basic motivation will be stressed.

**MU 535 PSYCHOLOGY OF MUSIC EDUCATION** 2 s.h.  
An analysis of latest evidence produced by field of psychology in music education as applied in actual classroom situations.

**MU 536 ADVANCED TECHNOLOGY OF MUSIC TEACHING** 2 s.h.  
Examination and application of modern communications media and their role in music education. Development of an experimental sound lab, use of electronic devices, synthesizers and computers. Application of systems approach and programmed learning to music education.

**MU 537 TECHNIQUES OF THE MARCHING BAND** 2 s.h.  
Theory and practical application of fundamentals of precision drill. Also, this course deals with building "half-time shows," materials and instrumentation of the marching band.

**MU 540-550 SUMMER MUSIC WORKSHOP** 1-3 s.h.  
Concentration in special interest areas. Content varies.

**MU 599 INDEPENDENT STUDY IN MUSIC** 1-6 s.h.

**APPLIED MUSIC (AM 501-670)** 1-4 s.h.

The following courses will be taught in form of private lessons geared to individual student and aiming at maximum progress of each student, depending on background of the student and time available. The student should for any series of lessons use the first number in programming for the first time, the second number for the second time, etc.

AM 501, 551, 601, 651	Private Piano
AM 502, 552, 602, 652	Private Organ
AM 503, 553, 603, 653	Private Harpsichord
AM 505, 555, 605, 655	Private Voice
AM 506, 556, 606, 656	Private Violin
AM 507, 557, 607, 657	Private Viola
AM 508, 558, 608, 658	Private Cello
AM 509, 559, 609, 659	Private Bass Viol
AM 510, 560, 610, 660	Private Flute
AM 511, 561, 611, 661	Private Clarinet
AM 512, 562, 612, 662	Private Oboe
AM 513, 563, 613, 663	Private Bassoon
AM 514, 564, 614, 664	Private Saxophone
AM 515, 565, 615, 665	Private Trumpet
AM 516, 566, 616, 666	Private French Horn
AM 517, 567, 617, 667	Private Trombone
AM 518, 568, 618, 668	Private Baritone Horn
AM 519, 569, 619, 669	Private Tube
AM 520, 570, 620, 670	Private Percussion

## PHILOSOPHY

---

Graduate courses in Philosophy are primarily designed to provide elective study in an unfamiliar discipline for teachers in the public schools. No graduate degree in Philosophy is offered. Degrees toward which credit in these courses may be used are indicated in the curriculum requirements sections of the catalog. Research or thesis work may be done in Philosophy with approval of the student's major program advisor.

### COURSE DESCRIPTIONS

---

**PH 580 READINGS IN RELIGIOUS THOUGHT 2 s.h.**

An examination of religion as a vital human phenomenon. Treating both classical and contemporary themes: origin of western theological thinking; alienation; contemporary atheism; definitions of deity in western and eastern religions; the sacred; origins of religion.

**PH 581 PROBLEMS IN LOGIC 2 s.h.**

Difficulties of meaning (semantics), formal structures of reasoning (syntactics), and nature of truth finding (empirics) Fallacy.

**PH 582 PROBLEMS OF ETHICS 2 s.h.**

Rational justification of moral judgments. Analysis of function and meaning of moral language. (Staff)

**PH 583 AMERICAN PHILOSOPHIC THOUGHT 2 s.h.**

Study of more influential and original philosophies developed in America from colonial period to present. (Staff)

**PH 584 PHILOSOPHY SEMINAR 2 s.h.**

Area research in the discipline, considering various facets of a central problem. Students doing a thesis or research project in Philosophy will register for this course. (Staff)

## PHYSICS

---

The graduate program in physics offers a choice of three degrees: a Master of Education, a Master of Arts, and a Master of Science. The student obtaining a master's degree for fulfillment of certification requirements usually selects either the Master of Education Degree or the Master of Arts Degree. The student obtaining a master's degree for additional preparation for research, an industrial position, or further graduate work will usually select the Master of Science Degree.

With a wide range of possible courses and research areas available, the student is required to have the consent of his departmental advisor before selecting a course or initiating a research project. Advisor assignments are made as soon as the acceptance of a graduate student reaches the physics department. The graduate student should arrange appointments with his advisor by contacting the secretary in the physics office.

Almost any combination of educational goals can be met.

### CURRICULUM FOR MASTER OF EDUCATION DEGREE

---

This program has a very large component of professional education with a limited number of semester hours available for Physics content courses. Thus students in this degree program will usually be those who hold an undergraduate B.A. or B.S. in Physics with a great deal of Physics content and for whom the professional education credential will be advantageous. The expectation is that these students will be working toward full certification to teach Physics in public secondary schools.



I. Professional Development Area — 9 semester hours

- A. Humanistic Studies (3 s.h.) — One course must be selected from FE 511 through FE 514
- B. Behavioral Studies (3 s.h.) — One course must be selected from the following: EP 504, EP 573, EP 576, EP 578, EP 580, CE 529, CE 539, SE 531
- C. Research Coursework (3 s.h.) — Students in this program must enroll in GD 515.

II. Specialization Core — 9 semester hours

Students in this program must enroll in the following three courses for three semester hours each: PY 511, PY 512, SC 576.

III. Thesis (optional) — 0 to 4 semester hours

Each student may undertake an individual research and complete an acceptable thesis under the direction of one of the Graduate Faculty. The semester hour requirement is fulfilled by enrolling in GD 550 for the proper number of semester hours as decided jointly by the student and his thesis advisor.

IV. Subject Area and/or Electives — 8 to 12 semester hours

With the **written** approval of his graduate advisor, the student may complete his 30 semester hour requirement\* by choosing from among any of the remaining courses in the Graduate School.

\*If the option of "no thesis" is exercised, an additional three semester hours are required bringing the total requirement to 33 semester hours.

## **CURRICULUM FOR MASTER OF ARTS DEGREE**

This program is the most flexible of the three graduate degree programs offered by the Physics Department. Each student's program is designed to meet his or her individual needs by the student and advisor working together.

The educational goals of students in many categories can be met while the student is working to attain his degree. Several examples of the category of student who may select this degree program are:

1. The student whose undergraduate training is in Physics Education, Physical Science Education, or Science Education with a strong professional education component. This student may need more content than professional education. In this program he may, with the concurrence of his advisor, enroll in exactly that ratio of content courses to professional education courses which are necessary to attain his goals.
2. The student who holds a teaching certificate in a field other than physics but is a secondary school physics teacher. These students often require formal course work in a number of areas of Physics in order to have Physics added to their certificate. This is normally a requirement of their school districts and/or the Commonwealth. This program allows them to meet this requirement while working toward a degree.
3. The student who wishes to enroll in a cooperative program including those programs with internship components. Students may earn 8 to 12 semester hours during a semester while interning under one of the special programs instituted by the University.

**SUBJECT MATTER — 15 semester hours minimum.**

Required coursework in Physics is to be selected from the Graduate Physics courses whose course number is 510 or greater. This selection must have the **prior** approval of the student's academic advisor and a notation of such approval is to appear in the student's folder.

**ELECTIVES — 11 to 18 s.h.**

The student may complete the requirements for an M.A. by selecting, with the approval of his advisor, from among the offerings of the Graduate School. The number of credits he selects for electives depends upon the option he exercises under Research and Thesis.

**RESEARCH AND THESIS OPTION**

Each Master of Arts student must complete his degree requirements in one of the following two ways:

- A. Undertake an individual research problem and complete an acceptable thesis. For this option he must schedule PY 600 for 2 s.h. and GR 550 for at least 2 s.h. If he selects this option he will have completed a minimum of 30 s.h. including these two courses for his degree.
- B. Decide, with the approval of his academic advisor, that he does not wish to undertake such a research problem. If he exercises this option, he will not do a thesis but must complete a minimum of 33 s.h. of coursework.

## **CURRICULUM FOR THE MASTER OF SCIENCE DEGREE**

---

- I. Admission Requirements. Any student meeting the requirements of the graduate school and having either a B.A. or a

B.S. with the major in physics will be permitted to initiate study in this curriculum. Students having other degrees that provide sufficient preparation in mathematics and physics may be permitted to initiate study with approval of the Chairman of Physics.

**II. Subject Matter Concentration**

A minimum of six courses to be selected with the approval of the advisor from the following: PY 536, PY 601-602, PY 634, PY 641, PY 651, PY 652, PY 661-662.

**III. Research Requirement**

Each Master of Science student is required to undertake an individual research problem and complete an acceptable thesis under the direction of one of the Graduate Faculty. The semester hour requirement is normally fulfilled by scheduling PY 600 and GD 550.

**IV. Comprehensive Examination**

The student is expected to pass a comprehensive examination.

**V. Free Electives**

The student may complete the 30 semester hour requirement by choosing from among any of the offerings of the Graduate School, with, of course, the advice and approval of his graduate advisor.

## **COURSE DESCRIPTIONS**

---

**PY 500 SPECIAL STUDIES**

1-6 s.h.

A special topic may be offered at the discretion of the department to fulfill a special necessity.

**PY 507 INTRODUCTION TO MATHEMATICAL PHYSICS I** 3 s.h.  
Designed to provide background needed for most 500 level courses. Student will acquire skills in problem solving in areas of mechanics and wave motion utilizing calculus and vectors. Prerequisite: Permission of advisor

**PY 508 INTRODUCTION TO MATHEMATICAL PHYSICS II** 3 s.h.  
A continuation of PY 507. Develops skills in problem solving in areas of electricity and magnetism utilizing vectors and calculus. Prerequisite: Permission of advisor

**PY 510 INTRODUCTION TO THEORETICAL PHYSICS** 3 s.h.  
Application of mathematical methods to physical theory in area of mechanics, electricity and magnetism including, partial differentials, vector calculus, and non-cartesian coordinate systems. Intended primarily for individuals in the M.Ed. program. Prerequisite: Permission of advisor.

**PY 511 SECONDARY SCHOOL PHYSICS LABORATORY PRACTICE** 1-3 s.h.  
Designed not only to give the student training in use of PSSC and Harvard Project Physics Laboratory materials, but also to increase his ability to make the lab a more effective teaching tool.

**PY 512 CURRICULUM DEVELOPMENTS IN SECONDARY SCHOOL PHYSICS** 3 s.h.  
Includes an intensive study of developments, such as PSSC and HPP. Philosophy, methodology and cognitive theory behind each curriculum will be considered. The lab equipment, experiments, and visual aids for each will be studied in their proper setting.

**PY 520 ADVANCED LABORATORY PRACTICE** 3 s.h.  
Experimental Physics. Experiments are made available to supplement student's previous training. Data interpretation and experimental techniques are emphasized. Topics can include but are not limited to various methods of measurement and analysis of radioactivity, interferometry, spectrometry, microwave optics, NMR, mechanical vibrating systems, and thermal properties.

**PY 531 MODERN PHYSICS** 3 s.h.  
An introduction to particle and wave properties of matter, atomic structure, quantum mechanics and the quantum mechanical model of the atom.

**PY 533 THERMAL AND STATISTICAL PHYSICS** 3 s.h.  
A unified approach to study of thermodynamics through use of statistical

mechanics. Temperature, entropy, chemical potential and free energy are introduced and applied to a monatomic ideal gas and systems of fermions and bosons in quantum and classical regions.

**PY 535 ELECTRONICS** 4 s.h.  
DC and AC circuits, diode circuits, and transistor circuits, such as the common emitter and emitter follower amplifiers, are extensively covered. Negative feedback, operational amplifiers, oscillators, and digital logic are introduced. These topics are discussed in lecture and investigated by the student in the lab.

**PY 536 ADVANCED ELECTRONICS** 3 s.h.  
Field effect transistors, noise problems, grounding and shielding, applications of digital logic, digital to analog to digital conversion techniques, transmission lines, and RCA 110A applications. Two one-hour lectures and one three-hour lab. Prerequisite: PY 535.

**PY 541 ANALYTICAL MECHANICS I** 2 s.h.  
Kinematics particle dynamics gravitation, free and forced harmonic motion, LaGrange's and Hamilton's Equations. Treatment of these topics utilizes vector calculus and differential and integral calculus.

**PY 542 ANALYTICAL MECHANICS II** 2 s.h.  
Central-force motion, dynamics of rigid bodies, coupled oscillations, and vibrating strings.

**PY 545 OPTICS** 3 s.h.  
Main concepts of modern optics utilized in areas of geometrical, wave and quantum optics. Includes presentation of illustrative examples in areas of laser technology, complex optical systems, interferometry, and spectroscopy.

**PY 551 ELECTRICITY AND MAGNETISM I** 2 s.h.  
Coulomb's Law, electrostatic potential, Gauss' Law, dielectrics will be presented using vector calculus in a modern field formalism. Prerequisite: PY 510.

**PY 552 ELECTRICITY AND MAGNETISM II** 2 s.h.  
Biot and Savart's Law, induced emf, vector potential, displacement current, special relativity and electromagnetic radiation will be presented using techniques introduced in PY 551. Prerequisite: PY 551.

**PY 561 QUANTUM MECHANICS I** 3 s.h.  
Introduction to theory of linear vector spaces, linear operators, eigenvalues, eigenvectors and eigenfunction and their application to the harmonic oscillator,

hydrogen atom, electron in a magnetic field, scattering and perturbations  
Prerequisites: PY 222 and PY 331

**PY 565 INTRODUCTION TO NUCLEAR PHYSICS 3 s.h.**  
Survey of introductory nuclear physics including: nuclear size, mass, types of decay, models, forces, elementary particles, reaction theory

**PY 600 METHODS OF RESEARCH IN PHYSICS 2 s.h.**  
Offers the student practical training in special methods and materials of research in physics. Emphasis on types of research, use of physics and physics-related journals and library facilities. Prerequisite: Permission of department

**PY 601 THEORETICAL PHYSICS I 3 s.h.**  
Serves as a preparation in mathematical physics for graduate students. Included will be vector and cartesian tensor analysis, curvilinear coordinate systems, matrices, infinite series, ordinary and partial differential equations. Prerequisite: Permission of department

**PY 602 THEORETICAL PHYSICS II 3 s.h.**  
A continuation of PY 601, covering complex variables, and calculus of residues, Sturm-Liouville Theory, special functions, Fourier Series, integral transforms, integral equations and calculus of variations. Prerequisite: PY 601.

**PY 634 STATISTICAL MECHANICS 3 s.h.**  
A quantum approach to statistical mechanics. Fermi, Bose, ideal gas and imperfect gas systems are investigated. Selected topics in kinetic theory of gases, transport phenomena, magnetic systems and liquid helium. Co-requisite: Quantum I

**PY 641 ADVANCED MECHANICS I 3 s.h.**  
Includes the following topics: LaGrange's Equations, Hamilton's Principle, Two body central force, Euler's Theorem, Small Oscillations, Hamilton's Equations, canonical Transformations. Prerequisite: PY 312 or its equivalent.

**PY 642 ADVANCED MECHANICS II 3 s.h.**  
Rigid body mechanics, including Angular Momentum, Euler's equations, Precessions, Special relativity, Covariant four dimensional formulation, Covariant Lagrangian formulation, Hamilton-Jacobi Theory, Introduction to classical field theory. Prerequisite: PY 641 or equivalent.

**PY 651 ADVANCED ELECTROMAGNETIC THEORY I 3 s.h.**  
Solution of boundary value problems using Green's function and separation of variables techniques. Cartesian and spherical coordinate systems, multipole

expansions, macroscopic electrostatics and magnetostatics, Maxwell's equations and plane electromagnetic waves. Prerequisite: PY 323 or equivalent.

**PY 652 ADVANCED ELECTROMAGNETIC THEORY II 3 s.h.**  
Solution of electrostatic problems using cylindrical coordinates. Green's function for time-dependent wave equation, conservation laws, wave guides and resonant cavities, special Theory of Relativity, simple radiating systems and diffraction. Prerequisite: PY 651

**PY 657 SOLID STATE THEORY 3 s.h.**  
Quantum approach to solid state. Topics include second quantization or fermion and boson systems, electron theory of metals, electron-phonon interactions, and superconductivity. Selected subjects in thermal transport, magnetic phenomena. Co-requisite: Quantum I

**PY 661 QUANTUM MECHANICS II 3 s.h.**  
Fundamental concepts of quantum mechanics, theory of representations and linear vector spaces, relationship between quantum and classical mechanics. Approximation methods for stationary problems with applications to central potentials.

**PY 662 QUANTUM MECHANICS III 3 s.h.**  
Approximation methods for time dependent problems with applications to scattering and transition theory. Elementary theory of many particle systems with applications to: molecules and chemical bonds, fundamentals of the quantum theory of solids, Dirac theory.

**PY 690 RESEARCH PROBLEMS IN PHYSICS 1-6 s.h.**  
Introduction to advanced research problems through individual assignment. Prerequisite: Permission of department.

## SCIENCE COURSES

**SC 575 THE GROWTH OF SCIENCE AND ITS CONCEPTS I 3 s.h.**  
Traces development of science and its concepts from early beginnings to time of Newton. Interaction of science and math and their impact on growing society of Western Civilization is treated in a non-mathematical manner. Three hours lecture per week.

**SC 576 THE GROWTH OF SCIENCE AND ITS CONCEPTS II 3 s.h.**  
Influence and development of concepts of science in Western Civilization are studied from Newton to present time. While the concurrent development of mathematics is considered, stress is placed on the non-mathematical understanding of basic concepts. Three hours lecture per week.

## POLITICAL SCIENCE DEPARTMENT

---

The Political Science Department offers Concentration in the Social Science M.Ed. program (see page 111).

Subject to final approval of Pa. Department of Education, the Department plans to offer an M.A. in Public Affairs. For current status of plans and implementation dates for this new program, contact the Department Chairman.

## MASTER OF ARTS IN PUBLIC AFFAIRS

---

The M.A. in Public Affairs Program is designed for part-time and full-time students who are seeking or are engaged in professional careers as administrators, project directors, staff analyst supervisors in government and in human service agency delivery systems, and teachers in the Social Sciences.

The M.A. in Public Affairs degree requires a minimum of 30 graduate credits, including a research and/or internship requirement. In order to complete a program for his or her particular professional needs, however, **a student may be required to complete specific courses, not for graduate credit, in statistics, accounting, business administration, computer methods, foreign language, economics, political science, psychology, and sociology.** The student should have sufficient preparation in the social sciences, or equivalent professional experience, in order to perform satisfactorily in the program. These requirements may be satisfied by prior course work, correspondence courses, qualifying examinations, or undergraduate courses offered at IUP. These preparatory requirements will be determined by the Political Science Department upon formal application to the Graduate School

and may be completed after admission to the Graduate School prior to admission to candidacy for degree.

Required of all students is PS 574 and **one** Concentration of at least 21 s.h. (A) Political Science, or (B) International Studies, or (C) Government and Public Service. The following courses, with Advisor approval, are open to students in **all** Concentrations: PS 501, 590, 595, 599. Courses which may be included in Concentration (A) are: PS 550-586, with 560 or 561 required; Concentration (B): PS 570, and 581-586, with 572 required; Concentration (C): PS 550-559, 573, with 571 required. Up to 6 s.h. of Concentration (A) may be selected from other related fields; up to 9 s.h. for Concentrations (B) and (C). See department chairman or advisor for list of approved related courses.

The Research Requirement of a minimum of 6 s.h. may be met by scheduling SS 514 or GD 515 or PS 574 plus 2-6 s.h. Thesis credit and/or 2-6 s.h. Internship (with Research Project), PS 595. For students with Government and Public Service Concentration (C), Internship may be waived and up to 6 s.h. credit may be extended to those students with at least three years prior experience in public administration, as evaluated by and at discretion of the department.

Students will receive, in addition to M.A. in Public Affairs degree, a Certificate in Political Science, or International Studies, or Government and Public Service. Certification requirements include: Meeting all Degree and Concentration requirements; a 3.5 QPA; and written and oral examination by Departmental Committee. Non-degree students who do not have a baccalaureate degree may also seek certification through meeting 18 s.h. Concentration requirements, 3.5 QPA and examination.

## COURSE DESCRIPTIONS

### PS 501 STUDIES IN POLITICAL SCIENCE 1-3 s.h.

In depth study of a specific problem or topic not regularly treated in courses. (Staff)

### \*PS 550 THE PRESIDENCY 3 s.h.

Examines the Office of President with attention to constitutional foundations, evolution, structure powers, and functions. Comparisons are made between presidential and parliamentary systems and between offices of President and Governor. (Thorpe)

### \*PS 551 THE LEGISLATIVE PROCESS 3 s.h.

Study of legislative process in the U.S. with emphasis on Congress and the Pennsylvania General Assembly. Focus on organization and function of legislative bodies, with American legislative institutions compared with those of other nations. (Thorpe)

### \*PS 552 PUBLIC OPINION 3 s.h.

Study of nature of public opinion within political system. Attention to formation of public opinion, expression, propaganda, mass media, and interest groups. (Green)

### \*PS 553 AMERICAN POLITICAL PARTIES 3 s.h.

Role of people, parties, and pressure groups in politics of American democracy. Attention is devoted to sectional and historic roots of national politics, voting behavior, pressure group analysis, and campaign activities. (Smith)

### \*PS 554 METROPOLITAN PROBLEMS 3 s.h.

Analyzes multiplicity of problems facing our metropolitan areas such as urban renewal, shrinking tax base, federal aid to cities, subsidized mass transit, municipal authorities, and political consolidation. (Green)

### \*PS 558 JUDICIAL PROCESS 3 s.h.

Explores nature and limits of judicial power, courts as policy-making bodies, selection of judges, decision process, external forces impinging on the courts, and role of Supreme Court in its relationship with Congress, the Presidency, and federalism. (Keene)

### \*PS 559 CONSTITUTIONAL LAW AND CIVIL LIBERTIES 3 s.h.

Study of civil liberties and civil rights issues through leading Supreme Court decisions. Topics include First Amendment rights, procedural due process and the Bill of Rights, and equal protection problems (Keene)

### \*PS 560 POLITICAL PHILOSOPHY 3 s.h.

Evolution of Western political tradition of Constitutionalism from Plato and Aristotle to Locke and Montesquieu; religious and rational foundations; medieval theories of authority and representation; early modern theories of state and sovereignty. Concepts of law, natural rights, liberty, and equality, and justice are treated in detail. (Wilson)

### \*PS 561 MODERN POLITICAL THOUGHT 3 s.h.

Development of Western political thought since the mid-16th century; classic liberalism; conservative thought; modern irrational ideologies such as fascism and national socialism; socialist thought; contemporary collectivist liberalism. (Wilson)

### PS 570 FOREIGN POLICY STUDIES 3 s.h.

Considers selected problems in international affairs. Emphasis on those problems and conflicts which have evolved in the post-war era, particularly as they relate to position of the United States in world affairs. Specific problems are approached both in terms of countries involved and the existing balance in world economic, ideological, and power structure. (Carone, Platt)

### \*PS 571 FEDERAL ADMINISTRATIVE POLICY 3 s.h.

An intensive study of role of federal agencies and their administrators in determining and developing public policy. Public administration in practice is emphasized by utilizing case studies. Previous course in Public Administration is desirable but not required. (Palmer)

### PS 572 COMPARATIVE POLITICAL STUDIES 3 s.h.

Theory, structure, politics, and problems of selected foreign governments are analyzed from comparative point of view. Special emphasis on comparing and contrasting ideas and institutions with those of the U.S. (Carone, Morris, Platt)

### PS 573 REGIONAL POLITICAL STUDIES 3 s.h.

Examines structure and function of state, county, and municipal governments. Emphasizes problems faced by government at these levels and seeks solutions to these problems. Pennsylvania governmental forms are stressed but are contrasted with those of other states. (Heiges)

### PS 574 POLITICAL SCIENCE SEMINAR: SCOPE AND METHODS 3 s.h.

Exposes the student to approaches, methods, tools, focus, and boundary lines of political science study. As an introductory course to graduate work in political science, **it is required for all students in M.A. in Public Affairs degree program, and should be scheduled early in program.** Prerequisite: Open only to students enrolled in M.A. in Public Affairs, M.Ed. in Social Science, and M.A. in Social Science. (Green, Thorpe)

## PSYCHOLOGY

### \*PS 581-586 POLITICAL SYSTEMS

3 s.h.

Comparative study of government and politics of a selected region. PS 572 Comparative Political Studies should be taken first, if possible.

\*PS 581 LATIN AMERICA (Chaszar)

PS 582 AFRICA (Carone)

PS 583 ASIA

PS 584 MIDDLE EAST

PS 585 CENTRAL AND EASTERN EUROPE (Platt)

PS 586 ATLANTIC COMMUNITY (Carone)

### PS 590 SPECIAL TOPICS

1 s.h.

Series of "mini-courses" on special topics requiring less attention than the usual course. Topics usually are a specific problem area, skill or concept. Prerequisite: Open only to students enrolled in M.A. in Public Affairs, M.Ed. in Social Science, and M.A. in Social Science. Requires specific approval of advisor as to relevance of topic to student's program and concentration. This is **not** "independent study," in that students electing the "mini-course" will meet as a group. However, individual study assignments may be made between course meetings. Scheduling of meetings will be flexible. Political science staff develop and offer "special topics" on basis of apparent student needs and interests. Occasionally a "mini-course" will be offered by an "adjunct" or "visiting professor," where this can be arranged. May be repeated up to 6 s.h. (Staff)

\*May not be programmed by students with undergraduate credit for course.

### PS 595 POLITICAL SCIENCE INTERNSHIP

1-6 s.h.

Practical experience in government and politics. Students are individually assigned to a cooperating local or state government agency, political party, or interest group, or to a federal or international agency when arrangements can be made. Students report periodically to professor in charge, and undertake reading assignments and write such reports and papers as the professor may require. Course credit hours will be determined by department chairman and by professor in charge. Course grade will be determined by the professor. Prerequisite: Must have approval of instructor and department chairman. Course is offered only when arrangements for internship can be made with cooperating agencies and is normally available only to full-time students.

### PS 599 INDEPENDENT STUDY

1-3 s.h.

Readings and written assignments on a specific topic determined by student and instructor in charge. May be repeated. (Staff)

The Psychology Department offers a Master of Arts degree with concentrations in General Experimental Psychology and Clinical-Community Psychology. The areas of concentration are so designed that graduates will be prepared to either immediately assume responsibilities in appropriate professional settings or proceed to doctoral level study. The department also offers courses open to students following other degree programs in the graduate school.

## MASTER OF ARTS IN PSYCHOLOGY

In addition to meeting the requirements for admission to the Graduate School, a student intending to work toward a Master of Arts in Psychology must have completed an undergraduate major in psychology, including courses in Experimental Psychology and Statistics, earned a B average or higher in courses taken in psychology, taken GRE's, and have submitted the Psychology Department admission form.

After completion of at least six hours of graduate work in psychology at Indiana, a student may formally apply to the Psychology Department's Graduate Admissions committee for admission to degree candidacy. At this time, the applicant must have attained at least 3.00 GPA, present satisfactory scores on the Graduate Record Examination (both Aptitude and Advanced Tests) and recommendations from faculty members familiar with his work. He should also submit for approval a complete course program planned in consultation with his advisor.

The M.A. in Psychology will be awarded at the successful completion of 45 hours work in the Clinical-Community

concentration or 33 hours work in the General Experimental Concentration. Course requirements for both concentrations are PC 501, PC 502, and a 6-hour thesis. The Clinical-Community concentration requires, in addition to the above, 9 hours of PC 575. The remaining courses are to be selected in consultation with advisor.

## COURSE DESCRIPTIONS

### PC 501 RESEARCH METHODS I 3 s.h.

Research designs stressing experimental and statistical controls appropriate to lab studies are examined, lab included. Prerequisites: Undergraduate courses in statistics and experimental psychology major or minor.

### PC 502 RESEARCH METHODS II 3 s.h.

Research strategies characteristic of clinical psychology and applied social psychology will be studied. Prerequisites: Introductory courses in statistics and experimental psychology; Psychology major.

### PC 530 PSYCHOLOGY OF GROWTH AND DEVELOPMENT 3 s.h.

A comprehensive study of human growth and development from conception to death. Major research findings and developmental theories will be considered.

### PC 533 THE PSYCHOLOGY OF PERSONALITY 3 s.h.

An overview and integration of the major theories of personality.

### PC 534 ABNORMAL PSYCHOLOGY 3 s.h.

Theories of pathological behavior with reference to clinical and experimental data.

### PC 536 PSYCHOLOGY OF LEARNING 3 s.h.

Examination of classical and operant conditioning, and their basis for behavior modification techniques.

### PC 540 COMMUNITY PSYCHOLOGY & MENTAL HEALTH 3 s.h.

Preventive approaches to mental health and illness which stress the relationship between individuals and the social systems with which they interact.

### PC 541 ASSESSMENT OF INTELLIGENCE 3 s.h.

An introduction to various tests of general ability and training in their administration, scoring and interpretation. Prerequisites: Course in Introduction to Psychological Measurement or its equivalent; departmental consent.

### PC 542 ASSESSMENT OF PERSONALITY 3 s.h.

An introduction to various tests of interest and personality, and training in their administration, scoring, and interpretation. Prerequisites: Course in Introduction to Psychological Measurement or its equivalent; departmental consent.

### PC 545 THEORY AND TECHNIQUES OF PSYCHOLOGICAL INTERVENTION 3 s.h.

An introduction to major approaches to therapeutic psychological intervention; psychoanalysis, client-centered psychotherapy, group techniques and behavior modification. Prerequisite: Departmental consent.

### PC 546 PRINCIPLES OF BEHAVIOR MODIFICATION 3 s.h.

Applications of learning theory principles in changing maladaptive behavior, both on the individual and group levels.

### PC 550 SOCIAL PSYCHOLOGY OF CHANGE 3 s.h.

Models for influencing behavioral environments through using techniques designed to change social structures.

### PC 552 ENVIRONMENT AND BEHAVIOR 3 s.h.

The effects of political, social and economic environments on individual and group behaviors

### PC 558 SOCIAL PSYCHOLOGY 3 s.h.

A scientific approach to the study of behavior and experience of individuals in relation to other individuals, groups and culture. Prerequisite: Psychology major.

### PC 561 MOTIVATION 3 s.h.

A systematic study of how behavior is initiated, sustained, directed, and terminated. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major.

### PC 562 PHYSIOLOGICAL PSYCHOLOGY 3 s.h.

The relationship between behavior and the anatomy and physiology of the nervous system. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major.



## READING

### PC 563 PERCEPTION

3 s h

The interaction of sensory and cognitive events in production of awareness of the world. Lab projects are conducted. Prerequisites: Course in experimental psychology, Psychology major

### PC 565 CONDITIONING AND LEARNING

3 s h

The focus is on animal research with discussion of classical conditioning, discrimination learning and aversive control of behavior. Lab projects are conducted. Prerequisites: Course in experimental psychology, Psychology major

### PC 566 HUMAN LEARNING AND MEMORY

3 s h

The methodology employed in areas of verbal learning and retention, encoding, storage, and retrieval processes. Lab projects are conducted. Prerequisites: Course in experimental psychology, Psychology major

### PC 567 ANIMAL BEHAVIOR

3 s h

Behavior of various animal species and men are examined from the position of evolution of behavior as adaptation to a changing ecology

### PC 568 LEARNING THEORIES

2 s h

A review of current research and theoretical developments in the psychology of learning

### PC 571 SEMINAR IN PSYCHOLOGY

3 s h

Designed to examine a special topic in depth. Students prepare presentations representing selected research areas. Departmental consent

### PC 574 PSYCHOLOGY OF ADULTHOOD & OLD AGE

3 s h

A review of theories and research which apply to young, middle, and later adulthood, with particular emphasis on old age

### PC 575 ADVANCED PSYCHOLOGICAL PRACTICUM

3-9 s h

Provides graduate students with experience in applied settings. Prerequisites: Permission of Coordinator of Practicum.

### PC 590 HISTORY OF PSYCHOLOGY

3 s h

Comprehensive overview of historical antecedents of contemporary psychology. Prerequisite: Psychology major

### PC 599 INDEPENDENT STUDY IN PSYCHOLOGY

2-6 s h

Individual students develop and conduct research studies in consultation with a faculty member. Prerequisites: Psychology major, departmental consent.

There is a marked need for qualified and properly certified reading personnel in public and parochial schools at all levels of instruction. In particular, there is a noted shortage of both Reading Specialists and Reading Supervisors in the Commonwealth of Pennsylvania.

In keeping with these demands, Indiana University of Pennsylvania provides and directs the formal learning experiences of the Reading Specialists and Reading Supervisor at the graduate level. These learning experiences entail both classroom and clinical instruction by faculty members who are sincere and dedicated to the students and the programs. In addition, the faculty members represent a marked balance with a variety of backgrounds and areas of expertise — reading, elementary and secondary education, psychology and reading research.

## Specific Requirements

Students seeking a Master of Education degree with a major in reading and who desire certification as Reading Specialists are required to complete a minimum of thirty-six (36) semester hours of course work selected from the curriculum designed for the preparation of Reading Specialists.

A student who wishes to secure reading specialist certification does not desire a Master of Education degree may do so by formulating a program of studies with the Coordinator of the Graduate Reading Program contingent upon admission to the Graduate School. The program for each student will be formulated based on the student's needs, educational experiences and teaching experiences. All students who desire

certification are required to either take the required courses as outlined in Program for Reading Specialist, or demonstrate or document the competencies required in the program.

Criteria for final recommendation for certification of program enrollees are as follows:

1. Mastery of competencies determined through the use of oral and/or written examination administered by Reading Faculty.
2. Recommendation of Reading faculty.

## Procedures for Admission

An applicant must first be admitted to the Graduate School as a qualified student. He then secures the Reading Program application packet from the Coordinator of the Graduate Reading Program, completes the forms and returns them to the Coordinator's office for review. Applicants may be requested to report for an interview with the Reading Faculty and will be notified of admission to the program.

Upon admission to the Reading Program, students should arrange to meet with the Coordinator to formulate an approved program of courses.

## READING SPECIALIST PROGRAM

### I. Professional Development (9 s.h.)

- A. Humanistic Studies (3 s.h.): FE 511, FE 512, FE 513, FE 514.
- B. Behavioral Studies (3 s.h.): EP 504\*, EP 573\*, EP 576\*, EP 578\*, EP 580, CE 529, CE 539, SE 531.
- C. Research (3 s.h.): GR 515

\*Students will select one for certification.

### II. Specialization Core (6 s.h.): ED 500\*, ED 501\*

III. Subject Area\*\* (21 s.h.): ED 502\*, ED 503\*, ED 510\*, ED 507, ED 508, ED 520, ED 596, ED 597, ED 598\*, EL 544, EL 547, EL 548, EL 555, EN 504, EN 544, SE 531, SE 565, SE 566.

\*Required of students seeking certification.

\*\*If thesis option is selected, minimum is 17 s.h.

## READING SUPERVISOR PROGRAM

### Procedures for Admission

Students must have a M.Ed. degree and certification in reading. Before completion of the program students must have had five years teaching experience as a reading specialist to receive certification.

## Program

Students will plan their program on an individual basis with the Coordinator of Reading. A minimum of sixteen semester hours beyond the M.Ed. program is required. Students may be required to take additional courses for competencies not achieved at the M.Ed. level. Courses will be selected from the following: ED 504, ED 505\*, GD 515, ED 570\*, ED 596, ED 597, EL 532, EP 562\*, SE 566\*, FE 515\*.

\*Required

## COURSE DESCRIPTIONS

ED 500 BASIC FOUNDATIONS OF READING INSTRUCTION 3 s.h.  
Emphasis on nature of reading process; nature of learner; advancement of pupil's reading skills; how pupil learns to read; what teacher can do when pupils fail to learn to read.

**ED 501 DIAGNOSIS AND REMEDIATION OF  
READING DISABILITIES 3 s.h.**

General principles, types, and specific approaches to diagnosis that are appropriate for classroom and clinic. Students will examine and administer diagnostic instruments. Methods and materials used in remediation at elementary and secondary level will be discussed and demonstrated.

**ED 502 READING PRACTICUM DIAGNOSTIC CASE STUDIES 3 s.h.**

By preparing a case study on a pupil who has been referred to the Reading Clinic, the student will administer and interpret a battery of tests, both formal and informal, leading to specific recommendations for further testing, if appropriate, and remediation. Prerequisite: ED 500, ED 501, and ED 510.

**ED 503 READING PRACTICUM REMEDIAL CASE STUDIES 3 s.h.**

Student will design a remedial program for an individual pupil, basing their work on a previously written diagnostic case study report including implementation of program, selection of appropriate learning materials, administration of further diagnostic tests to determine additional problems, if any are suspected, and recommendations for further remediation. Prerequisites: ED 502 and its prerequisites.

**ED 504 REMEDIATION OF SEVERE READING  
DISABILITY CASES 3 s.h.**

An extension of ED 501, it considers scope of extreme disability reading cases, analysis and treatment, including (1) primary and secondary classifications of reading difficulties, (2) specific patterns of syndromes of severe reading disabilities together with diagnosis and prognosis of them, and (3) specific treatment advocated for these disabilities. Practical experience with a student diagnosed as a severe reading disability case under supervision of specially trained university personnel.

**ED 505 ADMINISTRATION AND SUPERVISION  
OF READING PROGRAMS 3 s.h.**

An understanding of functions and duties of reading supervisor and effective ways of implementing them.

**ED 507 INSTRUCTIONAL MATERIALS IN READING  
FOR CHILDREN AND YOUTH 3 s.h.**

Designed to guide teachers, librarians, principals, reading specialists, and other curriculum workers in viable choices of appropriate materials for reading instruction.

**ED 508 READING IN THE CONTENT AREAS 3 s.h.**

Problems related to teaching students reading and study skills specifically needed in each of the subject areas at elementary and secondary levels. Content teachers learn how to develop student's competence in these skills as part of their regular classroom instruction. Reading specialists study ways to help classroom teachers be more effective in this kind of instruction.

**ED 510 THE TEACHING OF READING IN  
THE SECONDARY SCHOOL 3 s.h.**

Specific guidelines and techniques for developing reading skills in each of the content areas.

**ED 520 READING INSTRUCTION FOR THE  
CULTURALLY DISADVANTAGED 3 s.h.**

Sociological, psychological, experiential and linguistic variations that are sources of disadvantages and enables teacher to modify attitudes, diagnostic procedures, materials and instructional procedures to enhance reading/learning skills.

**ED 570 INTERNSHIP IN SUPERVISION OF  
READING INSTRUCTION 4 s.h.**

Students are assigned to various school systems and clinical agencies in which they perform as supervisors under university and faculty selected local administrative personnel. Internship includes research, discussions, evaluation of reading programs, and supervision of developmental, corrective, and remedial programs. Prerequisite: Administration and Supervision of Reading Program.

**ED 596 INDEPENDENT STUDY IN READING EDUCATION 1-3 s.h.**

The student, with cooperation of the reading faculty member with whom he expects to work and his reading faculty advisor, engages in a study individually or with a small group on some problem or field not clearly defined in existing courses. Prerequisite: Permission of the Coordinator.

**ED 597 SEMINAR IN SPECIAL PROBLEMS IN READING 3 s.h.**

Topics such as reading disability, preschool reading instruction, adult literacy programs, or organization of school-wide reading programs may be covered.

**ED 598 RESEARCH SEMINAR IN READING 3 s.h.**

Students will scrutinize and report on research in reading according to their interest. Areas of research concentration can vary each term. Prerequisite: Permission of the Coordinator.

## **SCIENCE FOR THE ELEMENTARY SCHOOL TEACHER**

---

The program leading to a Master of Education Degree in Elementary Science is designed to give elementary teachers depth and competency in the content areas of the physical and biological sciences. The assemblage of courses cited below should prepare the student for work as an Elementary Science resource person within his school or school district. Except for BI 500, GS 502, and GS 561 all of these courses are not open to majors in Biology, Chemistry, or Physics.

Following admission to the graduate school, each candidate is expected to appear before the Elementary Science Committee. At this meeting the candidate will be assigned to an advisor who will assist the student in selecting, preparing, and presenting his thesis or research project.

## **CURRICULUM FOR MASTER OF EDUCATION DEGREE**

---

This program is not intended for certification in science at the secondary level. It is designed to provide the elementary teacher with an opportunity to increase his ability to teach science at the elementary level. Students working for this degree with a major in Elementary Science will complete thirty (30) semester hours of work in accordance with the following divisions if a thesis is completed. If no thesis is selected, (33) semester hours must be completed.

### **I. Professional Development Area (9 s.h.)**

- A. Humanistic Studies (3 s.h.) — One of the following:  
FE 511, FE 512, FE 513, or FE 514

- B. Behavioral Studies (3 s.h.) — One of the following:  
EP 504, EP 573, EP 576, EP 578, EP 580, CE 529, CE 539,  
or SE 531

- C. Research (3 s.h.)  
GR 515, Elements of Research

### **II. Specialization Core — (6 s.h.)**

### **III. Subject Area and/or thesis — (15–18 s.h.)**

Subject Matter Concentration Area — fifteen to eighteen (15–18) semester hours of work in subject matter content are to be selected from the following courses except that a more advanced course may be required by the advisor if the background of the student warrants: ES 510–511, ES 530, ES 540, ES 550, ES 560, ES 564, ES 566, ES 568, ES 569, ES 574, ES 580, ES 588, ES 592, GS 502, GS 561, MA 521 or BI 500.

- ES 530      QUANTITATIVE TOOLS FOR EL. SCIENCE      3 s.h.  
Proficiency in quantitative aspects of science. Emphasis on practical problem solving related to typical lab data. Instruments, instrument calibration, graphing, and graph interpretation( interpolation and extrapolation). Area under the curve idea and meaning of slope on a graph will be explored extensively. Concentrated instruction in use of slide rule, use of logarithms and significant figures as tools to achieve above objectives. (Wolfe)

- ES 540      CHEMISTRY IN ELEMENTARY SCIENCE EDUCATION      3 s.h.  
Principles of chemistry through lab and/or field-centered experiences relevant to teaching chemistry in elementary school. Recommended for all elementary education majors. (Costa or Zambotti)

- ES 550      PHYSICS IN ELEMENTARY SCIENCE EDUCATION      3 s.h.  
Development of basic concepts in physics on a quantitatively plausible basis appropriate for elementary science. Lab work is designed to develop an understanding of force, work, and energy, and conservation of energy in mechanical thermal and electrical systems. Operational definitions and formulation and use of physical models. (Riban)

**ES 560 BOTANY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.**

Introduction to anatomy and life processes of plant cells, tissues, and organs. Consideration to selected algae, bacteria, fungi, mosses, ferns and their allies and seed plants. Recognition of groups of local plants, their economic importance and health implications are emphasized. Lab studies will include practical uses of plants. (Schrock)

**ES 564 ZOOLOGY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.**

A lab and field study which surveys principles and theory of zoological taxonomy and study of representative invertebrate and vertebrate taxa. Emphasis on freshwater and terrestrial forms which may be observed or collected in Western Pennsylvania. Homologous structures are compared and their functions are studied. Principles of embryology, genetics and animal behavior are introduced. (Stapleton or Merritt)

**ES 566 CONSERVATION IN ELEMENTARY SCIENCE EDUCATION 3 s.h.**

A new concept in conservation-corrective and preventive conservation for man's survival. Problems of pollution and population are central theme. Field work is required. (Ferrence or Hue)

**ES 568-569 FIELD BIOLOGY I AND II IN ELEMENTARY SCIENCE EDUCATION 6 s.h.**

**ES 568 FIELD BIOLOGY I**

A lab course on biological environment. Included will be recognition of regional vegetation formations and typical animals associated with these formations. Identification and collections will be made. No prerequisites (Summers only)

**ES 569 FIELD BIOLOGY II**

Ecology of Southwestern Pennsylvania counties. Attention toward interrelationships of plant, animal, and human populations. Field techniques including population analysis and measurements of effects of industrial activities will receive particular attention. No prerequisites. (Summers only) (Merritt, Stapleton, Waechter)

**ES 574 METEOROLOGY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.**

A descriptive analysis of fundamentals of weather, including: composition and structure of atmosphere, radiation, heat budget, cloud and rain physics, circulation patterns, storm structures, air pollution, and biometeorology. Familiarization with weather instruments, maps and records, as well as activities applicable to elementary science. (Prince)

**ES 580 ASTRONOMY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.**

A descriptive and qualitative study of stellar and solar system astronomy including telescopes and space travel at a level adaptable to the elementary school classroom and techniques for their presentation. Three (3) hours lecture and/or lab. (Sutton)

**ES 588 FIELD NATURAL HISTORY OF WESTERN PA 3 s.h.**

Bus and automobile travel throughout Western Pennsylvania. Places of interest in ecology, geology, conservation, and nature study will be visited. Offered in pre- or post-session only. Travel may require the student be away from campus for several days at a time. A travel assessment based upon needs will be made. (Ferrence)

**ES 592 ELEMENTARY SCIENCE CURRICULUM 3 s.h.**

Various approaches to teaching of elementary science and bases for these approaches. New curricula being used in elementary schools will be examined and critiqued. (Ferrence or Moore)

**GS 502 PRINCIPLES OF GEOLOGY 3 s.h.**

See course description under Geoscience. (Park)

**GS 561 OCEANOGRAPHY I 3 s.h.**

See course description under Geoscience. (Prince)

## **SOCIAL SCIENCE**

### **Master of Education in Social Science**

The Master of Education Degree in Social Science is designed to give secondary teachers greater depth and competency in the subject matter, methodology and research techniques of the social sciences.

Each student admitted to the Graduate School will be assigned to an advisor in the Social Science Division. All courses must be approved by that advisor.

Students working for this degree will complete a minimum of 30 semester hours of work in accordance with the M.Ed.

program description on page 20. Courses in subject matter concentration must be elected in three of five Social Sciences (Economics, Geography, History, Political Science, Sociology-Anthropology). See course listings elsewhere in this catalog.

## COURSE DESCRIPTIONS

### SS 510 NEW APPROACHES IN SOCIAL SCIENCE INSTRUCTION 2 s.h.

Selected new and innovative curriculum projects and materials beginning with an analysis of recent research in the behavioral sciences and history. Some emphasis on strategies for use of such materials in the classroom.

### SS 511 SOCIAL SCIENCE SEMINAR 2 s.h.

Research in methodology of social science in the secondary schools. Restricted to M.Ed. candidates. Prerequisite: GD 515 or SS 514.

### SS 514 RESEARCH METHODOLOGIES IN THE SOCIAL SCIENCE 2 s.h.

Selection of a research topic, techniques of locating and using source materials, evaluation of evidence, organization of tested data, and exposition of tested data according to approved forms. Methodologies of value of students of politics, economics, or sociology, in addition to those techniques usually treated in historiography.

### SS 521 CONTEMPORARY AMERICAN ISSUES 2 s.h.

Conducted in seminar fashion, centering its attention on one or two major contemporary American issues. Open only to non-majors in the social sciences.

### SS 561 SOCIAL POLICY STUDIES 2 s.h.

Focusing on several key issues on American social scene, the class will examine genesis of each problem, present conflict of values inherent in the problem, alternative proposals for its solution and the social consequences. Open only to non-majors in the social sciences.

### SS 598-599 SOCIAL SCIENCE FOREIGN STUDY 2-6 s.h.

Directed foreign study that involves travel and observation outside the United States. Areas visited and itineraries vary from year to year. Background reading, lectures and briefings, diary or evaluative paper. In recent years Argentina, India, the Soviet Union and countries of Western Europe have been tour destinations. For details on projected tours direct inquiries to Director, Center for International Studies.

## SOCIOLOGY

The Masters of Arts in Sociology is designed to serve two basic orientations: a) preparing for professional careers in academic organizations, such as community college teaching and governmental and social agencies, and/or research; as well as a scholarly foundation for those students who are interested in continuing their studies into a doctoral program; b) a professional commitment to community service and social agencies. This orientation recognizes that mature students can apply sociological theory and research findings to community organizations through their daily interactions, making major contributions to the community and human life. The M.A. in Sociology is also geared to benefit students who have an interest in government administration, urban planning, social welfare agencies, and other human services.

In addition to graduate school admission requirements, the student must have completed at least 12 hours of undergraduate Sociology courses with an average grade of B or better. In individual cases the department may allow a promising student to enter the program with deficiencies; however, such deficiencies must be made up by taking one or more of the departmental readings courses or other specified courses at the discretion of the department in addition to the required total number of course hours.

## Degree Requirements

All Master of Arts degree candidates are required to take the basic core requirements: SO 567, SO 591, SO 592\*

\*Master of Arts in Social Science and Master of Science in Education students may substitute either SO 564 or GD 565.

Students preparing for doctorates are advised to take the first area of concentration, and those students preparing for Sociology related professions are encouraged to follow the second area of concentration.

## AREAS OF CONCENTRATIONS:

I. Students preparing for doctorate. In addition to the core requirements, at least one course must be selected from each of the following four major areas:

- a) Social Institutions — SO 560, SO 572, SO 590\*, and SO 591\*.
- b) Social Problems — SO 557, SO 559, SO 562, SO 563, SO 565, SO 566, SO 590\*, and SO 591\*.
- c) Social Change — SO 560, SO 590\* and SO 591\*.
- d) Social Policies — SO 557, SO 559, SO 563, SO 565, SO 590\*, SO 591\*.

and six hours of electives within concentration and GD 550 (4-6 s.h.)

\*SO 590 and SO 591 are accepted in the specific major areas when either the topic or focus of the individual instructor directly relates to the area involved. For example, Social Institutions may include family, medicine, religion, political; special problems may include drug culture, alcoholism, battered children, marginal man, social self identity; social change may include rural-nonfarm communities emerging societies, social forces of change; and social policies may include either ethical imperatives, cultural values, helping relations, modern values affecting marital patterns.

II. Preparation for Sociology related professions: administrative, community, community organization, and social welfare agencies. This program requires 36 graduate credits with the

courses and practicum being selected in mutual consultation between student and advisor within the following guidelines:

- a) The core requirements: SO 567, SO 591, SO 592  
(a waiver of these required courses is sometimes possible in consultation with the department.)
- b) 6-9 credits in sociological-related courses which are relevant to student's career, and
- c) Graduate 550 Thesis — 3 credits, which is optional for this concentration.

## COURSE DESCRIPTIONS

SO 551 SYMPOSIUM OF SOCIOLOGICAL PRINCIPLES 3 s.h.

General overview of sociological principles regarding intergroup relationships and social system processes directed to students who fail to have at least a sociological minor equivalent at undergraduate level.

SO 557 SOCIAL PROCESSES OF AGING 3 s.h.

An introduction to problems of the aged and of aging past the middle life. Covered first is the aging individual and later the interrelation of this individual with family, community, and special setting, within framework of the limited welfare state.

SO 559 SOCIAL SERVICES 3 s.h.

To explore a specific aspect of social services ranging from aging to youth services with student choosing the area of exploration.

SO 560 SOCIOLOGY OF POWER 3 s.h.

Social power dimension of social strata and class with particular emphasis on lower or "underprivileged" strata. Employs, where possible, a cross-cultural approach for comparisons of U.S. with developing societies.

SO 562 DEVIANT BEHAVIOR 3 s.h.

Social-individual analysis of deviant behavior. Effect of social conditions and cultural values is emphasized. Legal, social and cultural perspectives to deviance are discussed.

SO 563 INTERGROUP RELATIONS 3 s.h.

Intergroup tensions and conflicts with emphasis on techniques of social action designed to reduce conflict.

SO 564 RESEARCH SEMINAR IN SOCIOLOGY 3 s.h.  
Area research considering various facets of a central problem both from the research and theoretical view points.

SO 565 ADOLESCENT IN AMERICAN SOCIETY 3 s.h.  
Students will prepare papers on topics such as delinquency or peer-group relationships.

SO 566 THE SOCIOLOGY OF SMALL GROUPS 3 s.h.  
Interrelation between the individual and groups such as home, school, neighborhood, work, community, etc., and dynamics and development of groups as well as interrelational and behavioral processes.

SO 567 RECENT SOCIAL THEORIES 3 s.h.  
Review of basic and advanced concepts in sociology with emphasis on modern theoretical and substantive contributions to the field. Include majors in sociology.

SO 572 SOCIOLOGY OF LAW 3 s.h.  
Sociological analysis of law and legal institutions. Prerequisites: 9 graduate credits.

SO 590 READINGS IN SOCIOLOGY 3 s.h.  
Students report and develop extensive bibliographies on assigned readings for a depth understanding of a specific sociological concept, process, or problem.

SO 591 SPECIAL TOPICS SEMINAR IN SOCIOLOGY 3-6 s.h.  
Seminar focuses on particular substantive areas. Students will do extensive reading according to topics selected by instructor.

SO 592 METHODS AND FIELDWORK PRACTICES 3 s.h.  
An examination of latest methodological and fieldwork procedures in sociology. Students will be expected to develop reasonable project outlines. Required for M.A. majors in Sociology.

In addition to the above courses, students can take SO 599 if they wish to do Independent Study in Sociology.

Note: Anthropology graduate courses listed in Social Science Program:

AN 591	STUDIES IN ANTHROPOLOGY	3 s.h.
AN 592	COMPARATIVE CULTURES	3 s.h.
AN 593	THE SCIENCE OF CULTURE	3 s.h.
AN 594	ANTHROPOLOGY SEMINAR	3 s.h.
AN 595	PRE HISTORY	3 s.h.

## **SPECIAL EDUCATION AND CLINICAL SERVICES**

---

This Department offers a graduate program leading to the Master of Education degree in Education of Exceptional Children or in Speech Pathology. The Department also offers the Master of Science degree in Exceptionality or in Speech Pathology. A graduate level of competency in these major areas is in accord with national standards now emphasized by professional organizations such as the Council for Exceptional Children and the American Speech and Hearing Association.

### **CURRICULUM FOR THE MASTER OF EDUCATION DEGREE IN EDUCATION OF EXCEPTIONAL CHILDREN OR THE MASTER OF SCIENCE DEGREE IN EXCEPTIONALITY**

---

The M.Ed. degree requires a course in Foundations of Education and practicum experiences in appropriate settings. The Master of Science degree is based upon an individual program which integrates academic as well as practicum experience with selected community agencies. A minimum of 36 semester hours, or 30 s.h. plus a thesis is required for either degree.

### **CURRICULUM FOR MASTER OF SCIENCE IN EXCEPTIONALITY**

---

Professional training is provided for those who wish to gain competencies for working with mentally and/or physically handicapped adults and their families in the community or in various agencies and organizations. Advisor recommendation should be obtained prior to enrollment. Course selection and



degree candidacy is based upon individual background and employment goals. Candidates for the Master of Science degree will select a minimum of 21 s.h. in Subject Matter Concentration including 6 s.h. of EX 555 Practicum, EX 522, EX 530, EX 531, and PC 540 and EX 545. They will also complete a minimum of 3 s.h. in GR 515 Elements of Research as well as 3–6 hours of Inter-related Study selected according to student needs.

## **CURRICULUM FOR THE MASTER OF EDUCATION DEGREE IN EDUCATION OF EXCEPTIONAL CHILDREN**

---

This graduate program offers student majors Master of Education options in one of the following areas of concentration: (1) Mentally Retarded, (2) Emotionally Disturbed, (3) Learning Disabled. As a prerequisite for completion of the M.Ed. degree, all three major options require Pennsylvania teaching certification in Education of Mentally and/or Physically Handicapped. Candidates with teaching certification in other fields will be required to complete additional semester hours toward such certification, depending on individual background.

All three concentration areas require 9 semester hours in Professional Development selected from the approved list, including 3 s.h. in Foundations of Education, 3 s.h. selected from the course list in Behavioral Studies, and 3 s.h. in Research (GR 515). (See page 20 for detailed information on these requirements) All three concentration areas also require 6 s.h. in Specialization Core, including EX 540 as well as the specialization courses in each area, EX 523 for the Mentally Retarded concentration, EX 565 for the Emotionally Disturbed

concentration, and EX 566 for the Learning Disabled concentration.

All three concentration areas require a minimum of 21 s.h. in Subject Area course work unless the thesis option is selected. Course work selection for all 3 options include EX 522, EX 530, EX 532, EX 539, EX 546, EX 555, EX 560. Additional subject area selections for each option include EX 565 for both Mentally Retarded or Learning Disabled, EX 566 for Mentally Retarded, and EX 523 and PC 534 for the Emotionally Disturbed concentration.

## **CURRICULUM FOR THE MASTER OF EDUCATION OR MASTER OF SCIENCE DEGREE IN SPEECH PATHOLOGY**

---

The Speech Pathology major leads to a Master of Education or a Master of Science Degree. A minimum of 36 semester hours or 30 semester hours plus a thesis is required for either degree. The Master of Education Degree requires a course in Foundations of Education and minimal practicum experiences, whereas the Master of Science Degree is based upon an individual academic program including sufficient practicum experiences to meet the national standards established for a Certificate of Clinical Competence. Those students who have not completed at least 18 semester hours normally included in an undergraduate major in the area may be provisionally admitted and upon completion of the deficiencies may apply for fall graduate status. Each student is assigned an advisor whose signature will be required for initial registration.

## **MASTER OF EDUCATION**

---

Candidates for the Master of Education Degree will choose 9

semester hours in Professional Development, a Specialization Core of 6 semester hours (SH 504 and SH 530), and 18 to 22 semester hours in the Subject Area. SH 510, SH 550 and 1 credit of SH 561 will be required. See page 20.

## MASTER OF SCIENCE

Candidates for the Master of Science Degree will select a minimum of 24 semester hours in the Subject Matter Concentration including SH 504, SH 510, SH 530, SH 540, SH 550, SH 561 and SH 663. They will also complete a 3-6 semester hours of Research and choose 3-6 semester hours from the Course Offerings of the following departments: Art, Counselor Education, Educational Psychology, Elementary Education, English, Foundations of Education, Learning Resources and Mass Media, Psychology, Reading, Sociology-Anthropology, Social Sciences or Special Education.

## COURSE DESCRIPTIONS

### EDUCATION OF EXCEPTIONAL CHILDREN

EX 522 ORIENTATION TO PHYSICALLY HANDICAPPED 3 s.h.

Principles and practices in rehabilitation, with attention to contributions of teachers, counselors, nurses, social workers, psychologists, speech therapists, and other professional workers.

EX 523 CURRICULUM AND METHODS 3 s.h.

Designed to provide an in-depth understanding of current curriculum levels for all retarded students. Curriculum guides are evaluated and analyzed in relation to present and future programs. Some consideration to subject matter at elementary and secondary levels, relationship between academic subjects and vocational skills; emphasis on clinical and diagnostic approach in curriculum design.

SH 524 PRINCIPLES AND PRACTICES IN SPEECH IMPROVEMENT 3 s.h.

Study of the normal development of speech, classroom methods in speech improvement, and special consideration for children handicapped in speech or

hearing. Library research, project work, demonstrations and experimentation will be heavily stressed.

EX 530 ORGANIZATION AND ADMINISTRATION OF PROGRAMS FOR EXCEPTIONAL CHILDREN 3 s.h.

Principles, practices, and problems of administration and supervision as they relate to developing and maintaining special education programs. Criteria are analyzed for use in evaluation of local programs. Functions of administrators and supervisors in school systems are compared according to rural, urban, or state-wide responsibilities. Prerequisite: SE 520, 521, 540. (Required for administrators and supervisors.)

EX 531 PSYCHOLOGY OF THE EXCEPTIONAL CHILD 3 s.h.

Designed to aid the student in meeting needs of those children who deviate from the typical in areas of physical, mental, emotional, and educational developments. Consideration to methods of instruction and curricular material.

EX 532 GUIDANCE AND ADJUSTMENT 3 s.h.

Home, school, and community influences are analyzed in family adjustment to the presence of an exceptional child. Family reactions are considered in behavioral differences among children with various degrees of exceptionabilities. Emphasis to guidance skills and knowledges needed by teachers and other professional workers in field of exceptionability.

EX 538 PSYCHOLOGY OF THE GIFTED CHILD 3 s.h.

Characteristics of the bright, fast-learning child along with implications for education. Emphasis to measurement techniques, motivational factors, and personality dynamics.

EX 539 PSYCHOLOGY OF THE MENTALLY RETARDED 3 s.h.

Characteristics of the slow-learner and of the non-educable child along with implications for education. Emphasis to measurement techniques, motivational factors and personality dynamics.

EX 540 DIAGNOSTIC TECHNIQUES IN SPECIAL EDUCATION 3 s.h.

Diagnostic procedures and appropriate test materials are selected for use in assessment of pupils with mental, physical, emotional, and learning disabilities. Observations and demonstrations, reporting and interpreting results of diagnostic procedures are integrated with remedial or developmental recommendations in individual case studies. Prerequisite: SE 531, SE 539.

EX 541 INTERPRETATION OF RESULTS OF PSYCHOLOGICAL TESTS 3 s.h.

Results of psychometric tests are analyzed and interpreted. Various

standardized psychological instruments and test batteries are considered in the light of their purpose and usage. Both individual and group test results are examined.

**EX 545 COMMUNITY AND AGENCY PLANNING 3 s.h.**

Selected professional, governmental and community organizations are studied for their contributions to comprehensive planning toward educational, personal-social, and occupational adjustments. Social, educational, economic, and cultural aspects are analyzed.

**EX 546 TEACHING THE TRAINABLE MENTALLY RETARDED 2-3 s.h.**

An analysis of curriculum and program content for the trainable mentally retarded ranging from preschool age to adult ages. Directed toward students and teachers who plan to teach the trainable retarded in public schools, institutional facilities, and/or sheltered workshops.

**EX 555 PRACTICUM AND INTERNSHIP 2-6 s.h.**

Advanced students are offered guided practicum experiences in selected schools, residential institutions, clinics, or agencies. Internship or supervised student teaching is planned individually. Students analyze, evaluate, and report on their experiences.

**EX 560 SELECTED PROBLEMS AND RESEARCH 3 s.h.**

Students will review critically recent developments in the field. Opportunity is afforded for independent readings and limited research reports. A student may identify a topic for subsequent development as his thesis or research project. Prerequisites: SE 539, SE 540.

**EX 565 EDUCATION OF CHILDREN WITH SOCIAL AND EMOTIONAL MALADJUSTMENTS 3 s.h.**

Examines reactions of children in the schools who deviate in their emotional or social behavior. Consideration is given to children who habitually exhibit overcontrolled, undercontrolled, or immature reactions. Identification, characteristics, educational provisions, and preventive measures are emphasized.

**EX 566 EDUCATION OF CHILDREN WITH LEARNING DISABILITIES 3 s.h.**

Emphasizes curriculum and remedial instruction for children with special learning disabilities who exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written language. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or in arithmetic.

## **SPEECH PATHOLOGY**

**SH 502 LANGUAGE DEVELOPMENT 3 s.h.**

Study of requisites, stages, and principles of ontogenetic development of an interpersonal communication system, structure and development of language, nature of and development of nonverbal communication.

**SH 504 DIAGNOSTIC METHODS 3 s.h.**

Evaluation of tests and techniques for diagnosis of speech and language disorders; interpretation of results and planning appropriate subsequent case management. Interviewing techniques appropriate to case history taking. Writing of diagnostic and case-history reports.

**SH 510 ARTICULATION 3 s.h.**

Linguistic approach to articulatory process and analysis of misarticulations as symptoms of language dysfunction; variables related to articulatory mastery; programmed, traditional, and sensory-motor methods of modifying articulatory behavior.

**SH 512 CLEFT PALATE 3 s.h.**

Problems associated with phenomenon of cleft lip and palate with special emphasis in areas of speech, hearing, and language. Included in course will be human embryology with specific emphasis on oral facial development; physical remediation, including both surgical and prosthetic repair; the effects of clefts on structure and function of speech and hearing mechanism; role of speech correctionist on the cleft palate team; evaluation and current remedial procedures for speech, hearing, and language problems.

**SH 514 NEUROPATHOLOGIES OF SPEECH 3 s.h.**

Anatomy and physiology of nervous system in common neuropathologies affecting speech and language. Investigation of symptoms and etiologies associated with deviant neural transmission and muscular contraction. Examination of diagnostic techniques employed in neuromuscular conditions resulting from palsies, progressive degenerative diseases, dysarthrias, tumors, and paralytic or paretic involvement. Emphasis on therapeutic approaches currently in use and associated psychological impact of such debilitating conditions.

**SH 516 STUTTERING 3 s.h.**

Nature and causes of stuttering. Emphasis on diagnoses and management. Counseling and learning theory applications as two main approaches to treatment. Consideration of the person as a stutterer. Review of pertinent and recent research topics.

## SH 518 VOICE 3 s.h.

Scientific principles of voice production and modification with emphasis on physiology, pathologies, or malfunctioning which produce voice defects, relationship between disorders of voice and personality; diagnostic and therapeutic considerations for both organic and psychogenic disorders, including the laryngectomized

## SH 530 LANGUAGE DISORDERS OF CHILDREN 3 s.h.

Anatomical, physiological, psychological, neurological and environmental factors related to language delay or disordered language acquisition. An inventory of language skills and means of fostering their development or compensating for inadequacies: a holistic vs. specific approach to programs of remediation.

## SH 532 APHASIA 3 s.h.

Consideration of language, speech and related problems resulting from neurological insult. Neurological functioning and dysfunctioning will be highlighted. Diagnosis and management of persons with aphasia, agnosias or aprasias will be emphasized. Role of family in rehabilitation and family counseling.

## SH 535 SEMINAR IN COMMUNICATION 1-3 s.h.

Intensive study of one or more areas of speech science, speech and language pathology, or audiology. Topics vary to meet the student's needs and interests. Course may be repeated for credit with a change in area considered. Prerequisite: Speech Pathology major, admission to degree candidacy and advisor approval.

## SH 540 ADVANCED AUDIOLOGY 3 s.h.

Identification of types of peripheral hearing impairment by standard audiometric procedures. Pure tone audiometry: air conduction, bone conduction, masking. Speech Audiometry: speech reception threshold, speech discrimination score, tolerance level. Hearing aids: selection procedures and acoustics. Specialized diagnostic audiological tests for cochlear lesions, retrocochlear lesions, central lesions, and non-organic losses. Practical experience to develop skills in administration of standard tests, special tests, and hearing aid selection.

## SH 550 SPEECH SCIENCE 3 s.h.

Physiologic, acoustic, and perceptual characteristics of speech, with special emphasis on speech monitoring and controls. Major lab instrumentation and research techniques in current use are described and demonstrated. Status of present knowledge is summarized and discussed.

## SH 561 ADVANCED CLINICAL PRACTICUM 1 2-6 s.h.

Supervised practicum experience in the University Speech and Hearing Clinic

with individuals exhibiting speech, language, and/or hearing dysfunction. Planning and carrying on of programs of therapy plus interviewing, diagnosing, counseling, and report writing. Two clock hours per credit.

## SH 663 ADVANCED CLINICAL PRACTICUM II 2-6 s.h.

Similar to SH 561, students assume more responsibility, and experience may be done at approved off-campus sites. Two clock hours per credit.

# DIRECTORY

## IUP BOARD OF TRUSTEES

---

PATRICK J. STAPLETON.....	Indianapolis, Indiana
PATRICK F. McCARTHY.....	Punxsutawney
A. J. DEREUME.....	Punxsutawney
FRANK GORELL, SR.....	Indianapolis, Indiana
DONALD W. MINTEER.....	Worthington
MIRIAM K. LUDWIG.....	North Braddock
ROBERT J. SHUPALA.....	Fairview
E. JAMES TRIMARCHI.....	Indianapolis, Indiana
CATHERINE M. BURGER.....	Holidaysburg

## GRADUATE COUNCIL

---

DR. EDWARD MOTT, Chairman  
 DR. GERARD PENTA, Vice Chairman  
 DR. CHARLES CASHDOLLAR, Executive Secretary  
 MR. WILLIAM LAFRANCHI  
 DR. DONALD McCLURE  
 MR. ROBERT MOORE  
 DR. HOWARD RUSSELL  
 MS. BECKY PETERSON  
 MR. HARRY SHOFF  
 MS. GLENDA SPRINGER





Robert L. Marx ..... Director, Campus Physical Planning  
 Judith A. Moorhead ..... Director, University Relations & Publications  
 Patricia K. Heilman ..... Information & Publications Specialist  
 Richard T. Wolfe ..... Director of Sponsored Research, Grants & Fund Raising

**GEORGE W. MURDOCH** ..... Vice President for Finance  
 Owen J. Dougherty ..... Housing and Food Service Director  
 Dale P. Marchand ..... Director of Institutional Research  
 John J. Nold ..... Director, Computer Center  
 Bruce Beaumont ..... Assistant Director, Computer Center  
 Thomas P. Cunningham ..... Assistant Director, Computer Center  
 Barbara Eisen ..... Assistant Director, Computer Center  
 Robert L. Woodard ..... Director of Institutional Research

## **DEPARTMENT CHAIRPERSONS**

### **School of Social Sciences & Humanities**

DAVID MEHDI AZIMI ..... Sociology/Anthropology  
 LUDO OP DE BEECK ..... Foreign Languages  
 RUTH I. SHIREY ..... Geography and Regional Planning  
 GEORGE T. WILEY ..... History  
 RICHARD F. HEIGES ..... Political Science  
 ROBERT M. HERMANN ..... Philosophy  
 RICHARD D. MAGEE ..... Psychology  
 RICHARD E. RAY ..... English  
 DONALD A. WALKER ..... Economics  
 VICTOR D. McGUIRE, JR ..... Criminology

### **School of Natural Sciences & Mathematics**

GARY L. BUCKWALTER ..... Physics  
 WALTER H. GRANATA ..... Geoscience  
 RICHARD F. WAECHTER ..... Biology  
 STANFORD L. TACKETT ..... Chemistry  
 GARY L. BUTERBAUGH ..... Computer Science  
 MELVIN R. WOODARD ..... Mathematics

### **School of Business**

DENNIS D. TIGER ..... Business & Distributive Education  
 DONALD J. ROBBINS ..... Business Administration

### **School of Education**

BRUCE A. MEADOWCROFT ..... Educational Psychology  
 GERARD C. PENTA ..... Foundations of Education  
 DONALD C. McFEELY ..... Elementary  
 RONALD A. JULIETTE ..... Communications Media  
 EUGENE F. SCANLON ..... Special Education  
 GEORGE S. SPINELLI ..... Counselor Education  
 WARNER E. TOBIN ..... University School

### **School of Fine Arts**

RICHARD S. KNAB ..... Music  
 BENJAMIN T. MILLER ..... Art  
 DONALD G. EISEN ..... Theater

### **School of Health Services**

ROBERT J. LAUDA ..... Safety Sciences  
 D. SHELBY BRIGHTWELL ..... Health & Physical Education  
 MARY C. KATZBECK ..... Nursing  
 ALLAN T. ANDREW ..... Allied Health Professions  
 HERMAN L. SLEDZIK ..... Athletic

### **School of Home Economics**

ALMA L. KAZMER ..... Home Economics Education  
 SANDRA LYNN ..... Consumer Services  
 ALLEN M. WOODS ..... Food and Nutrition

### **Reserve Officer Training Corps**

LIEUTENANT COLONEL ANTHONY F. LENZI ..... Military Science

# INDEX

Academic Load .....	11
Admission to Graduate Study	
Application Procedures .....	9
Requirements for Admission .....	9
Admission Classifications .....	10
Admission to Candidacy for a Degree .....	18, 22
Advanced Graduate Study Beyond Master's Degree .....	20
Advisement .....	12
Administration .....	120
Applicants for Specialist Certification Programs .....	15
Auditors .....	11
Board of Trustees .....	119
Calendar .....	2-3
Campus Map .....	133
Career Services .....	6
Class Cancellation .....	15
Computer Center .....	6
Computer Science .....	24
Counselor Education Certification .....	46
Course Abbreviation Key .....	14
Delta Pi Epsilon Graduate Scholarship .....	7
Department Chairpersons .....	121
Doctoral Programs .....	21-23
Eligibility of Teaching Staff .....	21
Fees .....	12
Financial Aid	
Assistantships .....	6
Fellowships .....	7
Graduate Alumni Scholarship .....	7
Scholarships .....	7
Foreign Student Applicants .....	11
Forms	

Application for Admission to Candidacy for Master's Degree ..	125
Research Approval .....	127
Application for Graduation .....	129
Request for Career Service .....	131
Full-time Students .....	11
General Service Courses .....	24-25
Grading System .....	14
Graduate Council .....	119
Graduate Student Rights and Responsibilities .....	15
Graduation (Application) .....	19
Graduate Record Examination .....	11
Instructional Resources Services .....	5
Kappa Delta Pi Grad Scholarship .....	7
Library .....	5
Location .....	5
Master of Education Curriculum Requirements .....	20
Master's Degree .....	17
Miller Analogies Test .....	10
Part-time Students .....	11
Permanent Certification Requirements .....	19
Placement Service .....	6
Principal's Certification .....	16-17
Professional Growth Degree .....	18
Program Changes .....	8
Programming and Registration .....	12
Program Curricula, Instructions and Course Descriptions	
Adult — Community Education .....	26
Art and Art Education .....	27
Biology .....	32
Business .....	36
Chemistry .....	41
Communications Media .....	84
Counselor Education .....	46
Criminology .....	49
Economics .....	53



Educational Psychology .....	54
Elementary Education .....	57
English .....	62
Foreign Languages .....	66
Foundations of Education .....	70
Geography and Regional Planning .....	71
Geoscience .....	74
Health and Physical Education .....	77
History .....	77
Home Economics Education .....	80
Communications .....	84
Mathematics .....	88
Mathematics for Elementary School Teachers .....	91
Music and Music Education .....	94
Philosophy .....	98
Physics .....	98
Political Science .....	103
Psychology .....	105
Reading .....	107

Science for the Elementary School Teacher .....	110
Social Science .....	111
Sociology .....	113
Special Education and Clinical Services .....	114
Student Personnel Services in Higher Education .....	46
Refunds .....	13
Research Courses .....	25
Research Requirement .....	19
Residency Requirement .....	18, 21
Scholarship Requirement .....	19
Statistics Courses .....	25
Student Personnel Services in Higher Education .....	46
Supervised Laboratory Experiences .....	25
Time Limit .....	19
Transfer of Credit .....	19
Tuition and Fees .....	12
University Refund Policy .....	13
Veterans .....	7
Withdrawals .....	13



**The Graduate School  
Indiana University of Pennsylvania  
Indiana, Pennsylvania 15701**

**APPLICATION FOR ADMISSION TO CANDIDACY  
FOR A MASTER'S DEGREE**

Graduate Student Number \_\_\_\_\_ Social Security Number \_\_\_\_\_

Graduate Major \_\_\_\_\_

**GRADUATE RECORD  
EXAMINATIONS**

Applicant for M.A. M.Ed. M.S. Degree

(Please circle) Be accurate

Scheduled \_\_\_\_\_

Miss, Mrs., Mr. \_\_\_\_\_

Aptitude Test V \_\_\_\_\_

Address \_\_\_\_\_

Q \_\_\_\_\_

(Street)

Advanced Test \_\_\_\_\_

(City) (State) (Zip Code)

My plans for completing the requirements are as follows:

I plan to take the degree at the (Spring-Summer-Winter) Graduation in \_\_\_\_\_ 19 \_\_\_\_\_

I have completed at Indiana \_\_\_\_\_ hours credit

I am now enrolled in \_\_\_\_\_ hours credit

Transfer credit accepted \_\_\_\_\_ hours credit

I have yet to program and complete \_\_\_\_\_ hours credit (may include a thesis)

Total Program \_\_\_\_\_ hours credit

I plan to satisfy the research requirement in the following manner:

(Complete Part 1, 2, 3 OR 4.)

1. THESIS FOR CREDIT. My tentative thesis problem is \_\_\_\_\_

I would like Professor \_\_\_\_\_ to serve as my research advisor or Chairman of my Thesis Committee.

2. RECITAL. My major instrument is \_\_\_\_\_ . I would like

Professor \_\_\_\_\_ to serve as my recital advisor.

3. ART PROJECT. I would like Professor \_\_\_\_\_ to serve as my advisor.

4. OTHER PLAN \_\_\_\_\_

This application is filed in the Graduate Office \_\_\_\_\_, 19 \_\_\_\_\_

(Signed) \_\_\_\_\_  
Signature of Applicant

Approved by Chairman of Major Department

(Signature — Department Chairman) \_\_\_\_\_ (Date)

This application has been approved by the Graduate Council \_\_\_\_\_, 19 \_\_\_\_\_

(Signed) \_\_\_\_\_  
Dean of The Graduate School



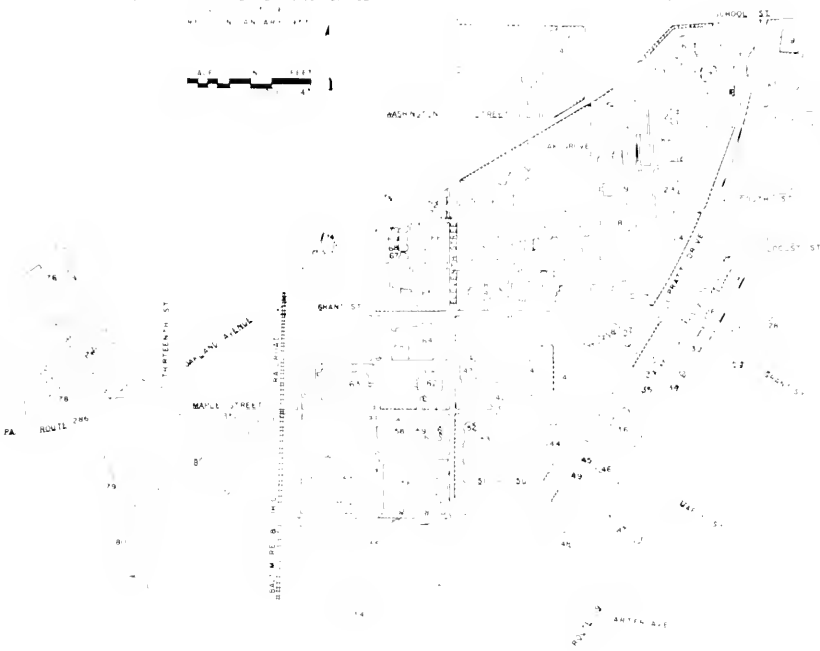
# INDIANA UNIVERSITY OF PENNSYLVANIA

INDIANA, PENNSYLVANIA

## BUILDING LOCATION MAP

PREPARED BY  
CAMPUS PHYSICAL PLANNING OFFICE

WEST NORTH EAST



N. M. H. A. P. P.

ALPHABETICAL KEY

- M. 1
- M. 2
- M. 3
- M. 4
- M. 5
- M. 6
- M. 7
- M. 8
- M. 9
- M. 10
- M. 11
- M. 12
- M. 13
- M. 14
- M. 15
- M. 16
- M. 17
- M. 18
- M. 19
- M. 20
- M. 21
- M. 22
- M. 23
- M. 24
- M. 25
- M. 26
- M. 27
- M. 28
- M. 29
- M. 30
- M. 31
- M. 32
- M. 33
- M. 34
- M. 35
- M. 36
- M. 37
- M. 38
- M. 39
- M. 40
- M. 41
- M. 42
- M. 43
- M. 44
- M. 45
- M. 46
- M. 47
- M. 48
- M. 49
- M. 50
- M. 51
- M. 52
- M. 53
- M. 54
- M. 55
- M. 56
- M. 57
- M. 58
- M. 59
- M. 60
- M. 61
- M. 62
- M. 63
- M. 64
- M. 65
- M. 66
- M. 67
- M. 68
- M. 69
- M. 70
- M. 71
- M. 72
- M. 73
- M. 74
- M. 75
- M. 76
- M. 77
- M. 78
- M. 79
- M. 80
- M. 81
- M. 82
- M. 83
- M. 84
- M. 85
- M. 86
- M. 87
- M. 88
- M. 89
- M. 90
- M. 91
- M. 92
- M. 93
- M. 94
- M. 95
- M. 96
- M. 97
- M. 98
- M. 99
- M. 100











